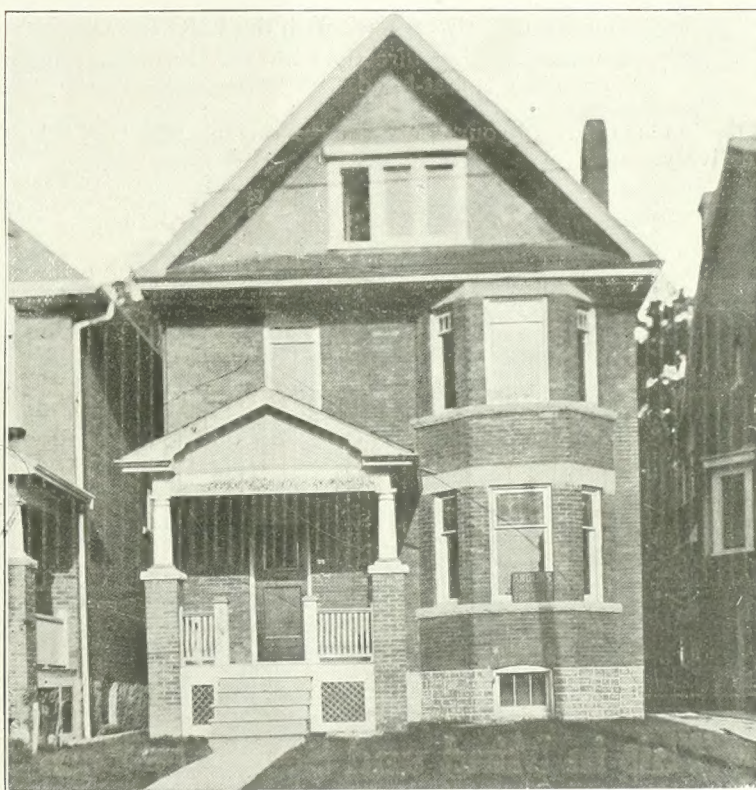


The Canadian Builder and Carpenter

PUBLISHED ONCE A MONTH BY THE COMMERCIAL PRESS, LTD.

Substantial, Attractive,
Comfortable Type of
House. The bow win-
dow is of a type which
appeals to any house
purchaser or owner.
The house is of pressed
brick on a stone founda-
tion.



Many Useful Plans

One of the special features of The Canadian Builder and Carpenter is the number of plans given in each issue. The plans are of houses, stores, barns, etc., which have been built and which contain useful ideas for builders to follow. We recommend having working drawings made, but for smaller buildings plans given are often sufficient.

Practical Articles

The practical articles have been prepared or suggested by men who are actually in the business. The usefulness of the ideas given is best judged by the hundreds of letters received. The following is a sample letter: "I think this is just the paper for any builder to get ideas from. I was glad that my idea was a good one for you to publish."

The Advertisements

During the winter months, before the building season opens up, special attention should be given to the materials and equipment advertised. If you desire further information the advertisers will be glad to supply it. If you cannot find what you want, write the Editors and they will secure the information for you.

In an early issue a lengthy, generously illustrated article on "Built-in Cupboards" will appear. Illustrations are all from Canadian houses.

Midland Planing Mill Products

The Leading Stock Lines

Reasons why CONTRACTORS & BUILDERS can best serve their own interests by dealing with us

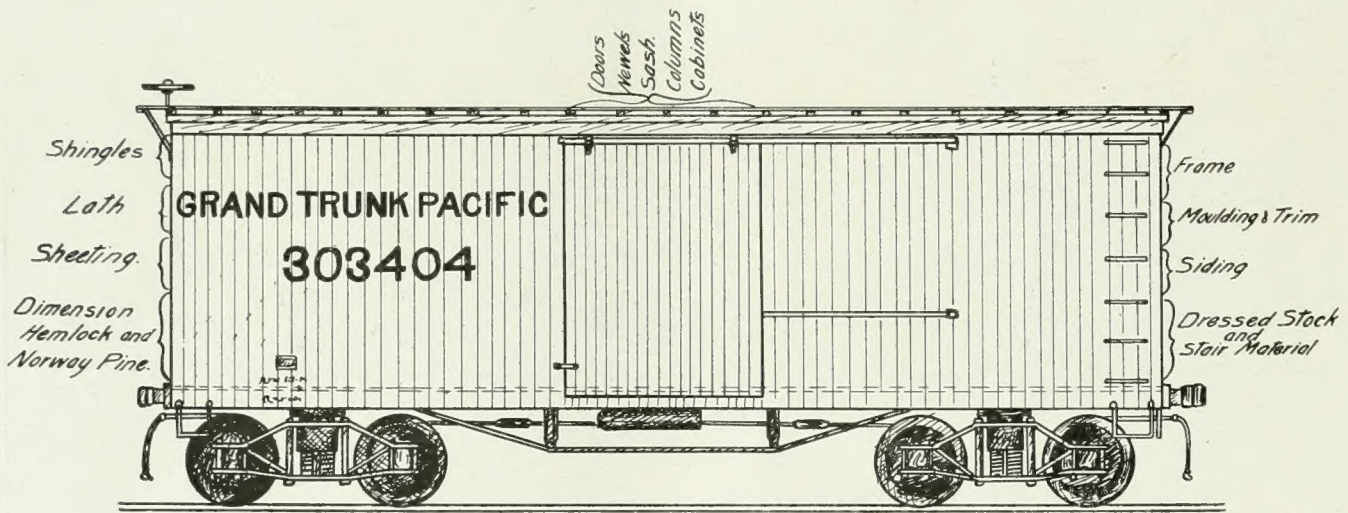
1. We are in the very heart of the Lumber Industry.
2. We operate our own Saw Mill.
3. We manufacture in our Planing Mills every line we offer to the Trade.

The Result

You are directly in touch with the FIRST COST of materials.

You are dealing directly with the Firm that manufactures the goods—the responsibility is first-hand.

And Finally—You can buy all your goods in the one place. Divided orders mean divided attention, and delay in delivery.



Keep This in Mind and Send Us Your Specifications For Mixed Car Lots

We cover all Territory with Practical and Competent Salesmen.
A line from you will bring an immediate call from one of them.
He may have practical suggestions that will save you money.
Let us place his services at your disposal.

Georgian Bay Shook Mills, Limited

MANUFACTURERS FROM THE TREE TO THE FINISHED PRODUCT

Midland, Ontario

Midland Planing Mill Products

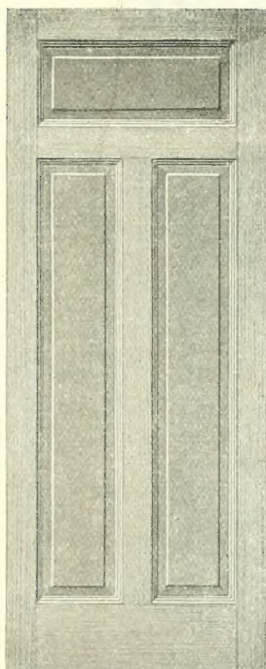
The Leading Stock Lines

Buy MADE-IN-CANADA Goods

Every order sent out of Canada this year means loss of employment to some Canadian workman and indirectly a loss to YOU.

Give more thought and consideration to the use of Canadian Native Woods. They possess merit, they are economical.

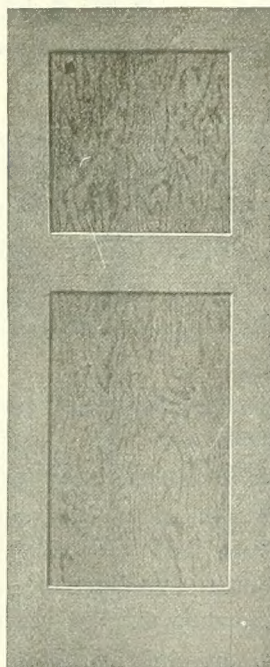
Let us send you samples, showing the possibilities of some of our own woods



STOCK SIZES

2-0 x 6-0
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2-2 x 6-6
2-4 x 6-6
2-6 x 6-6
2-0 x 6-8
2-2 x 6-8

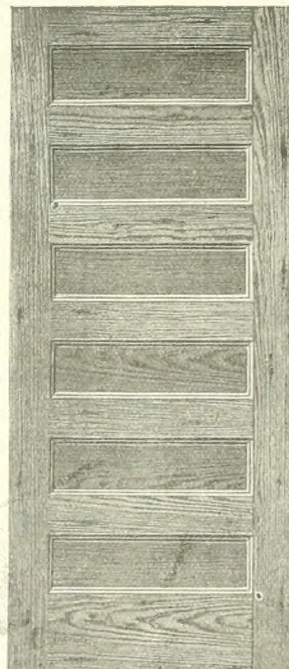
1 3/8 Inches Thick



STOCK SIZES

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2-8 x 6-8
2-6 x 6-10
2-8 x 6-10
2-10 x 6-10

1 3/8 Inches Thick



The Pine Door, A1 Clear
No. 10

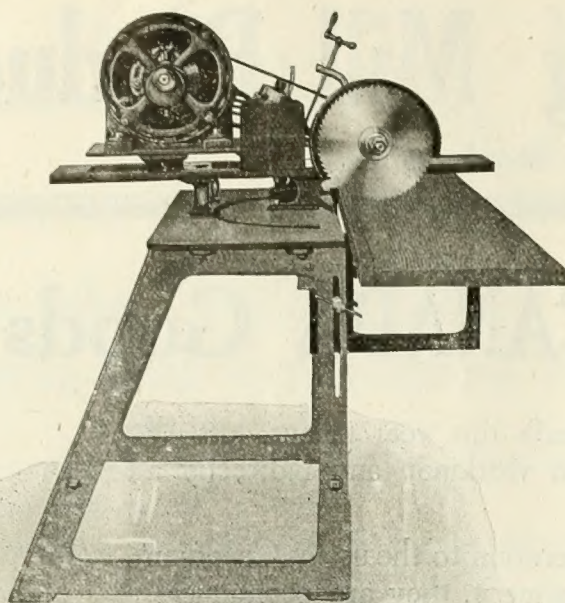
The Fir Door, Clear for Oil
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No. 16

Georgian Bay Shook Mills, Limited

MANUFACTURERS FROM THE TREE TO THE FINISHED PRODUCT

Midland, Ontario



THE ELLIOT

is the woodworking machine that will give you entire satisfaction and easily save you its cost long before the season is over. Some features of

The Elliot Woodworker

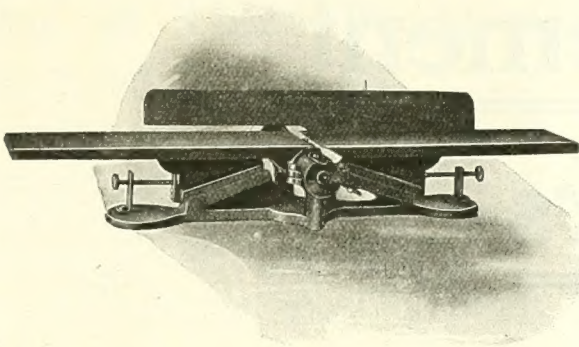
- ☐ Runs on any house lighting current.
 - ☐ Light and portable and can easily be moved to any part of the building.
 - ☐ Takes but a few days for the user to become an expert.
 - ☐ Almost impossible for the operator to obtain injury.
 - ☐ It is equipped with the best motor on the market and absolutely guaranteed.
 - ☐ It will save you 20% to 30% on every job.
 - ☐ Saves running to the mill.
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 - ☐ The cost of electric power in Toronto never exceeds \$1.50 a month.
 - ☐ The simplicity of construction, absence of countershafts, long belts, etc., make it economical to use and ensure it from getting out of order.
 - ☐ It will cut 3" thick, 3" joists, 2x4 fence boards, house out a pair of stair strings, 16' long in 35 minutes and do all other dadoing, grooving, etc., required.
 - ☐ It is entirely different from any other machine.
 - ☐ Hundreds of users all over Canada and United States strongly recommend it.
- We will gladly send you literature, prices and full information about the Elliot Woodworker on request.

The Elliot Woodworker, Limited

Head Office: College and Bathurst Streets, Toronto, Canada

United States Branch: 2405 Woodward Avenue, Detroit, Michigan

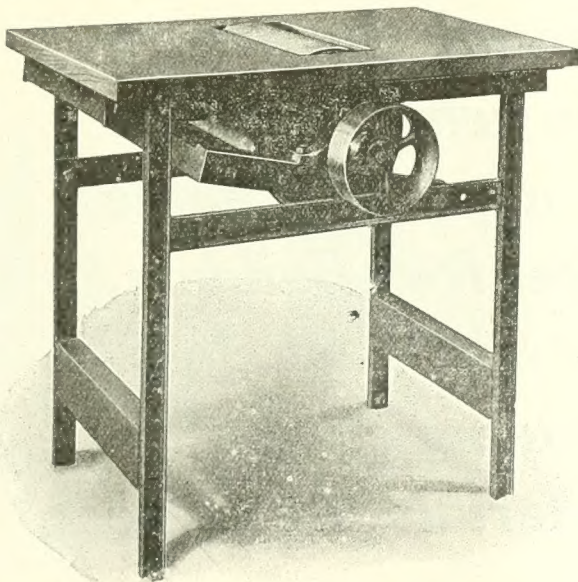
THE ELLIOT MACHINES



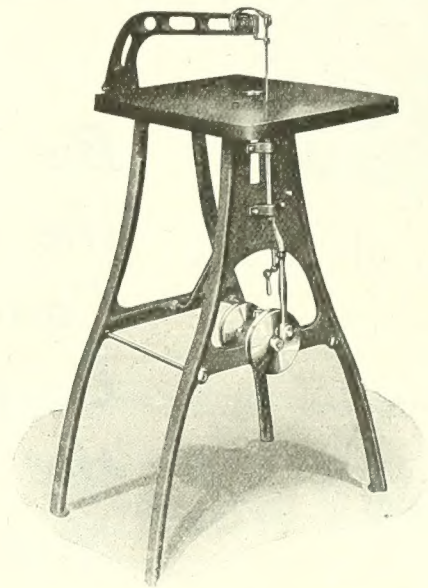
The Elliot Jointer

This 6-inch Improved Bench Jointer is needed by every Builder and Carpenter. It is just as handy in a small shop as a large one and will take care of all jointing planing, rabbeting, etc. No more use for the hand plane when you have this machine. The same motor that runs the Elliot Woodworker can be connected to it or it will run from any line shaft.

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The Elliott Drum Sander



The Elliot Scroll Saw and Shaper

The Elliot Scroll Saw and Shaper is two machines in one. The head can be removed and Shaper attachment put in its place in two minutes. As a Scroll Saw you cannot beat it for cutting cambers, corner blocks, fancy balusters, brackets, etc.

Used as a Shaper you can do all molding and shaping without delay.

Send a request for literature, prices and special catalogue of all our Woodworking Machinery

The Elliot Woodworker, Limited

Head Office: College and Bathurst Sts., Toronto, Canada

United States Branch: 2405 Woodward Avenue, Detroit, Michigan

Announcement to Readers

Be sure and look for the March issue of the Canadian Builder and Carpenter. This will be the Annual Directory Number, which number will be a very valuable reference for Builders, showing where all classes of building equipment and materials are to be had.



The Disston Standard of Quality Applies to Every One of Their Products

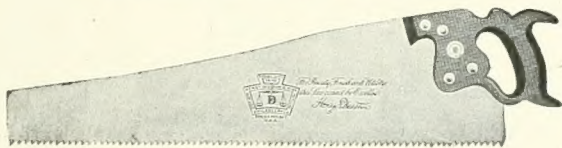
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Henry Disston, himself a finished mechanic, insisted upon sending his sons into the shop to learn the business as he did. Realizing the importance of this early training, his sons in turn placed their sons in the shops until they thoroughly understood the manufacturing end of the business.

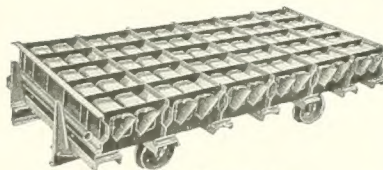
This means that the sons and grandsons of Henry Disston, who to-day manage the great business which he established, are all practical men. They know the business from the ground up, which assures a maintenance of the efficiency and high quality of all products manufactured by the Disston Works.

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LIMITED

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They sell for more

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BY A new process, which protects the facing while the block is being cast, we eliminate all traces of cement from the face of block, and nothing but the genuine granite shows in all its sparkling beauty.

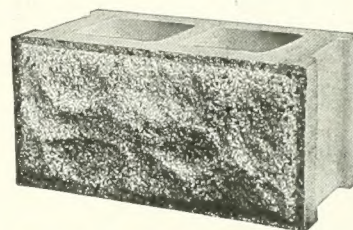
WE challenge the whole world to show us a cement block made by any other system, at any cost, that equals these for beauty, strength, quality or imperviousness to heat, cold or moisture.

Special Offer: Send us fifty cents and we will send, freight prepaid to any point in Canada, one of our granite-faced blocks. You will say when you get it that you never saw a cement block before.

Mr Contractor:—

Get into a business that is protected. Then you will make money.

Send for catalog fully describing our system

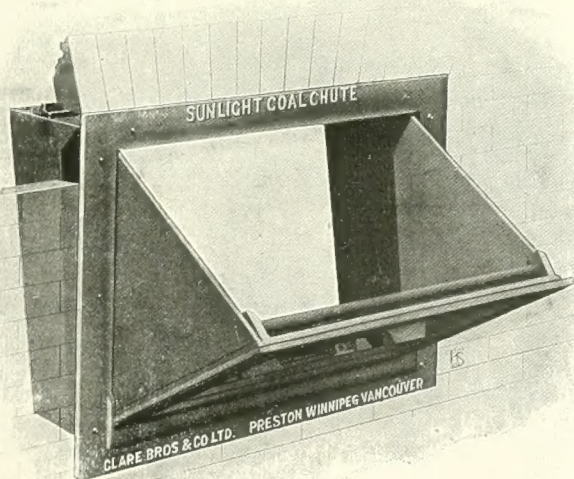


8x8x16 in. Granite Rock Faced Block

Cast Stone Block & Machine Co., Limited
Zagelmeyer System

302 Howard Ave.,

Windsor, Ont.



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is no longer a luxury but a recognized necessity in every up-to-date building.

Open—It's a chute through which fuel can be put into the basement with ease and convenience.

Closed—It's a window that locks automatically and can be opened only from the inside.

A Basement Window used for taking in fuel must be continually repainted, repaired and reglazed.

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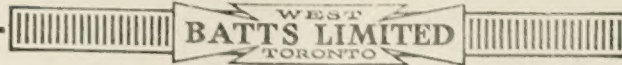
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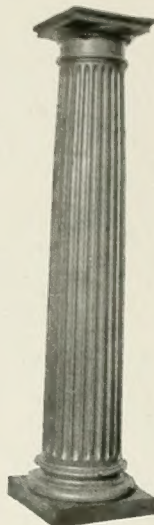
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Design B. L. No. 2



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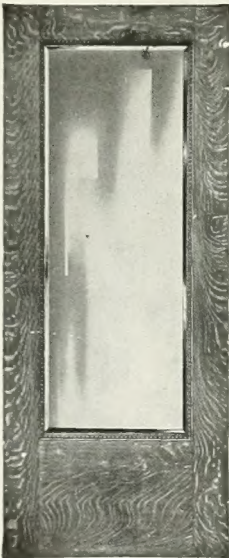


Design B. L. No. 5

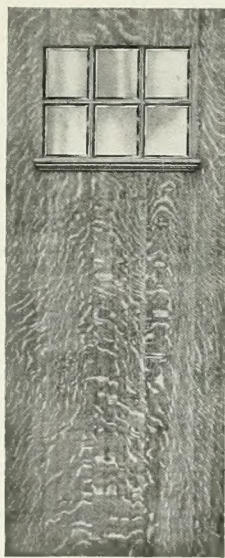


Design B. L. No. 6

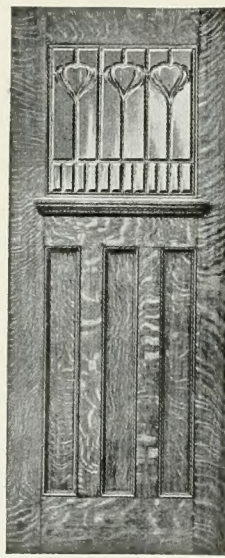
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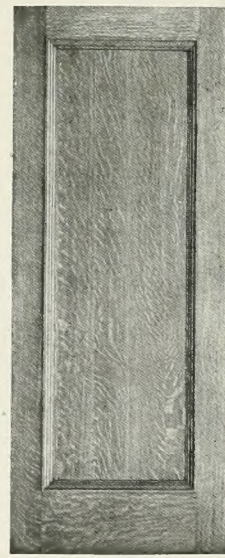
B.L. No. 306, 1/2-Cut Oak



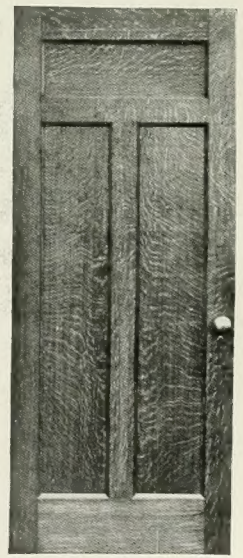
B.L. No. 312, 1/2-Cut Oak



B.L. No. 314, 1/2-Cut Oak



B.L. No. 316, 1/2-Cut Oak



B.L. No. 319, 1/2-Cut Oak

We Specialize on Work from Architect's Plans and Details

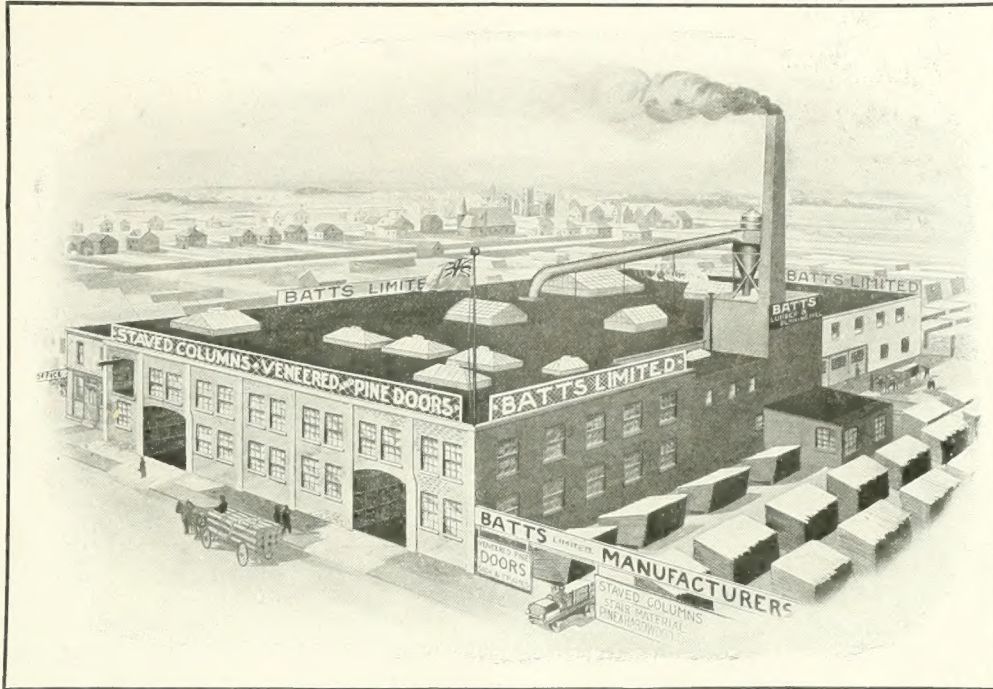
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Pacific Ave.

BATTS LIMITED

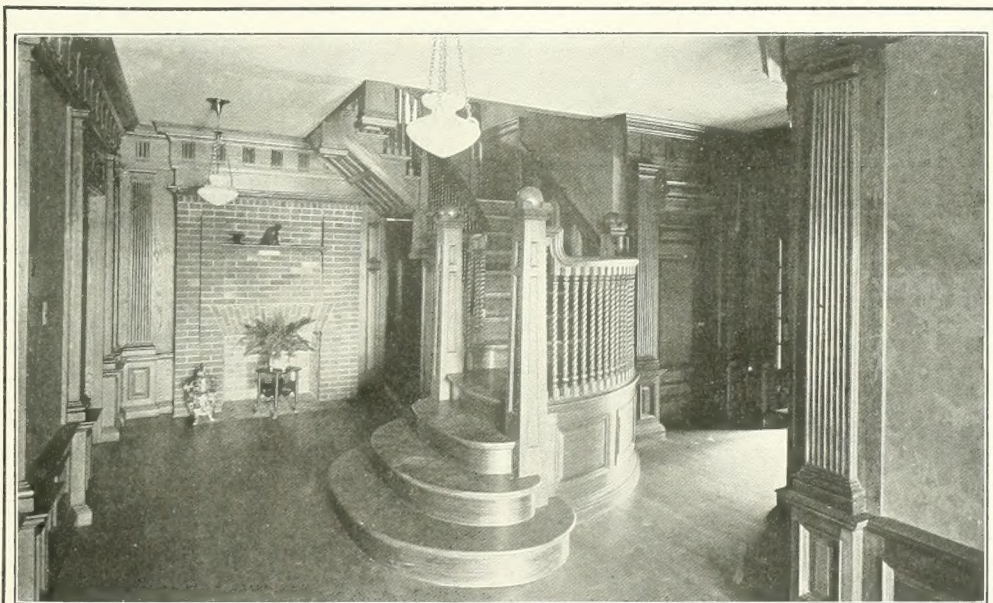
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GREENHOUSE MATERIALS NEWELS & TRIM VENEERED & PINE DOORS



DETAIL WORK A SPECIALTY



Hall of Dr. Risk's Residence, Alexander Boulevard, for which we supplied all the interior woodwork

Write for Catalogue, showing cuts of varied assortment of goods that we carry in stock, all of which are manufactured at our own factory.

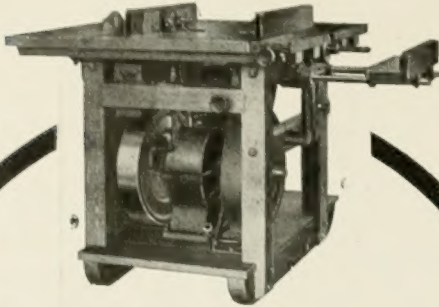
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It saws, it mitres, it bores, it sands, it dados, it jig-saws, it grinds tools. Its performance is practically bounded only by your ingenuity.



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Write to-day for your copy which is Free.

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Saves
6 men's
wages

Let's
prove
It to You

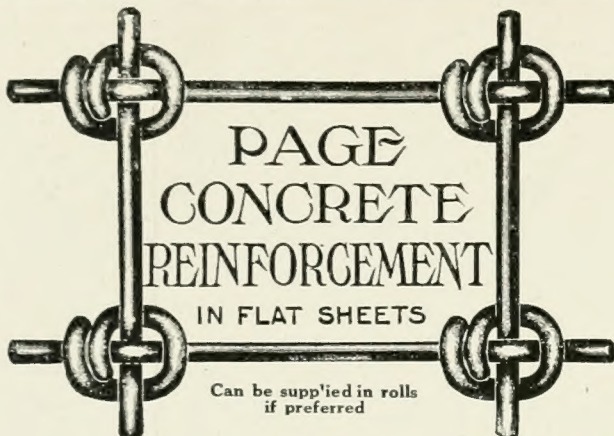
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For Concrete Road Pavement, Walks and Building Floors

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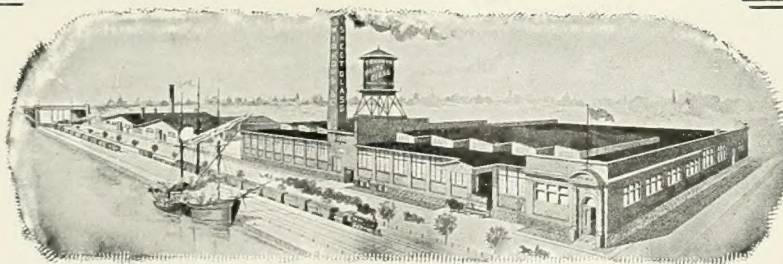
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1137 King St. W. 505 Notre Dame St. W. 87 Church St. 39 Dock St.
TORONTO MONTREAL WALKERVILLE ST. JOHN, N.B.

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BRAND
WINDOW
GLASS**



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BENDERS
TO
THE
TRADE**

THE TORONTO PLATE GLASS IMPORTING COMPANY, LIMITED

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Plate, Window, Figured, Stained, Wired, Bent, Mirror
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Hardwood Flooring and Hardwood Interior Finish

"WILSON BROS. LIMITED"
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ticle. Our flooring is straightened,
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Wilson Bros. Limited

Collingwood, Ontario

Are Your Friends

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The Canadian Builder and Carpenter

You can do them a good turn by intro-
ducing the paper to them, and at the same
time make 50 cents on each subscription
you secure for us.

Collect a dollar from each one who
subscribes, and send name and address to-
gether with 50 cents, keeping the other 50
cents for your trouble.

The Commercial Press Limited

32 Colborne St.

Toronto

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When you have work in
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us a chance to quote
you. We are doing
work all the year round
from one end of Canada
to the other.

This work comes to us
because our prices are
right and the materials
and workmanship of a
high standard.

Perhaps we can serve
you to advantage? Isn't
it at least worth your
while to ask us?

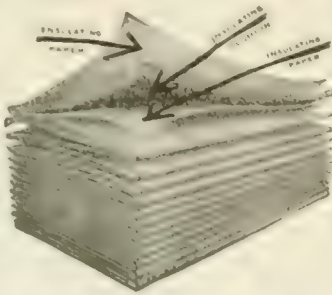
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and Cabs, Electric Lamp
Standards.

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Works Co. Limited**

**London
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A Cushion of Confined "dead" air insulating against Heat, Cold and Sound

That's practically the whole story of Keystone Hair Insulator. It keeps buildings cooler in summer, warmer in winter, quieter the year round.



Keystone Hair Insulator

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THE CANADIAN

H. W. JOHNS-MANVILLE CO., LIMITED

Toronto Montreal Winnipeg Vancouver



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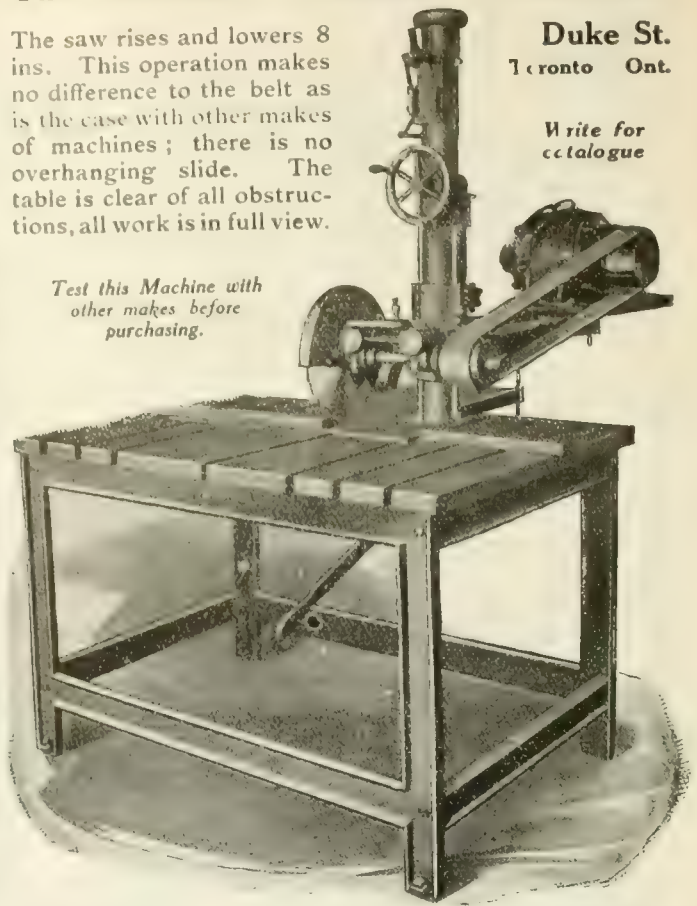
The Hutchinson Combination Woodworker

The saw rises and lowers 8 ins. This operation makes no difference to the belt as is the case with other makes of machines; there is no overhanging slide. The table is clear of all obstructions, all work is in full view.

Duke St.
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catalogue

Test this Machine with
other makes before
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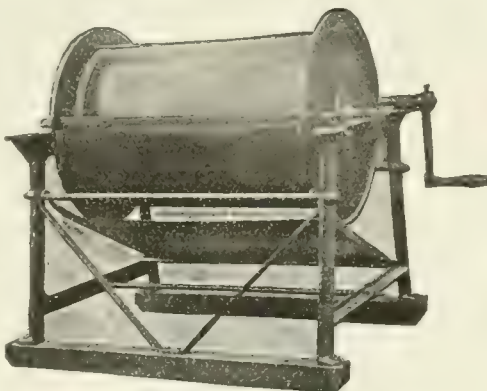
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Then you need a hand-mixer—one that is easily operated; serviceable; easily cleaned; inexpensive in first cost and in operation; and above all, one that gives a thorough and uniform mix at all times.

You need the

Little Giant Batch Mixer

The drum holds a 3½ cu. ft. batch. Can be mounted on trucks, making it portable. Fitted with a 1½ h.p. gasoline engine, the Little Giant makes a first class power machine.



Little Giant Concrete Mixer

Write us for
Catalog
No. 1-G

London Concrete Machinery Co., Ltd.

London

Ontario

Notice to Readers

Have you put up what you consider an attractive house recently?

You will have drawings or blue prints, bills of materials and specifications.

Why not send them to us for publication in The Canadian Builder. The advertising you would get as a result would make it well worth your while.

The Commercial Press, Limited

Toronto

A PRACTICAL
MONTHLY
PAPER

The Canadian Builder and Carpenter

PUBLISHED END
OF
FIRST WEEK

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the paper regularly, so that the matter may be rectified. In notifying us of change in address, please send old as well as new address.
Advertising rates on application.

Vol. 5

TORONTO, FEBRUARY, 1915

No. 2

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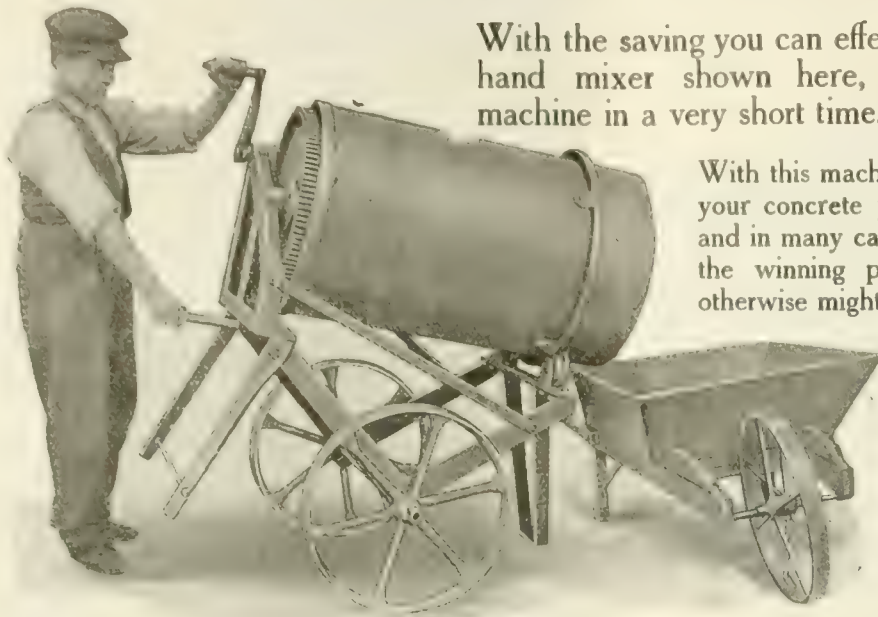
Decorative Value of Terra Cotta.

How to Prevent Stucco from Cracking.

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Make More Money On Your Next Concrete Job



With the saving you can effect with the up-to-date hand mixer shown here, you can pay for the machine in a very short time.

With this machine you can get the cost of your concrete jobs down to a minimum; and in many cases you will be able to quote the winning price on a job which you otherwise might not get.

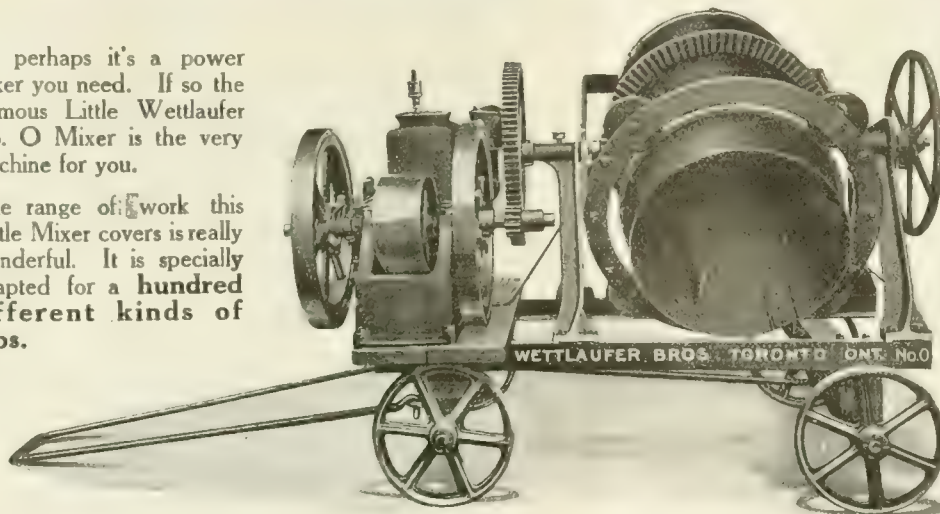
Write us for Circulars Showing Details and Prices

Wettlaufer No. O. Improved Hand Mixer

The Famous Little Wettlaufer No. O Power Mixer

Or perhaps it's a power mixer you need. If so the Famous Little Wettlaufer No. O Mixer is the very machine for you.

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Copy of our circular giving complete details and information concerning this machine sent free of charge to readers of *The Canadian Builder and Carpenter*.

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Calgary

The HALLMAN
MACHINERY CO.
3743 Alexander St.
Vancouver, B.C.

Garage Door Problem—Hanging Full Front Sliding Doors on Small Garages—Part II.

By E. J. G. Phillips
Chief Engineer, Richards-Wilcox Canadian Co., Ltd.

The construction of garages has opened up a new field to the Canadian builder. Many of the details are similar to those met in the construction of other buildings but the doors require special attention. The following article from the "American Carpenter & Builder," should be of service in eliminating any problems which may be presented in connection with doors for small garages.

THE sliding folding door shown in Fig. 10A can sometimes be used to good advantage. Four doors, hinged together in pairs, are required for each opening, one pair folding to the right and the other to the left side. The overall width of all the doors should be the same. The meeting stiles of the doors should be rabbeted to make weathertight joints, but it is

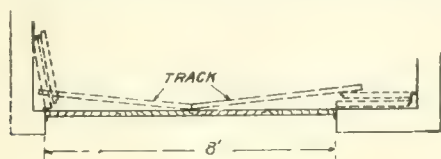


Fig. 10A.

essential to cut the rabbets and apply the butts exactly as shown in the illustration to prevent trimming an excessive amount from the upper corners of the centre doors where they interfere with the stop over the centre of the doorway.

A swivel hanger is attached near the edge of the doors which meet at the centre of the opening. These hangers operate in tracks which are set at an angle with the front wall, the outside end being the farthest from the wall. Doors may be hung to stand at any

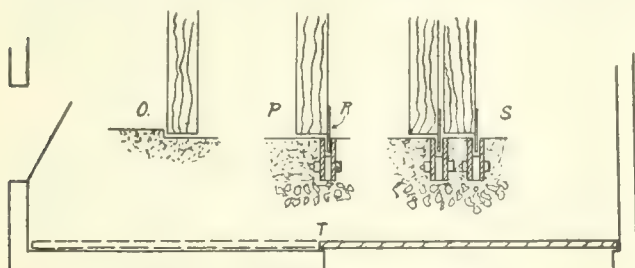


Fig. 11. Details of Storm Tight Sills.

angle with the front wall to suit the width of wall space adjoining the opening. The distance the hanger is set from the edge of the door determines the angle at which the doors will stand when open. When wall space will permit the doors to be swung around to a position parallel with the wall, the hanger should be set at the minimum distance, $2\frac{3}{4}$ inches. For other angles the distance will be greater and must be found experiment-

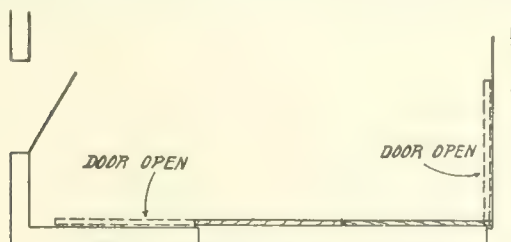


Fig. 12. Wide Door in Two Panels.

tre by a guide which is set into the floor. Steel shoes are attached to the lower corner of the door to prevent injury by the guide.

Two top and bottom bolts joined to centre operating handles by connecting rods are required for each set

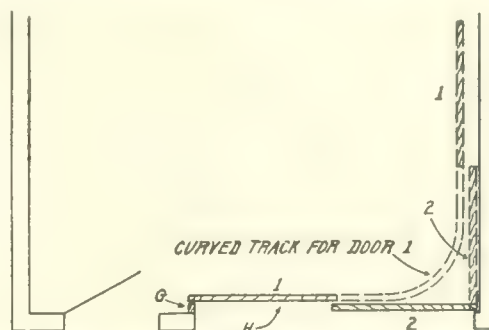


Fig. 13. Right Angle Doors Requiring Minimum Space for Turn.

of doors. These are attached to the stiles of the centre doors which are hinged to outside doors and are operated from the inside of the building.

Arranging Tracks for Larger Garages.

Next consider private garages for one car with the main opening close to one side of the front of building as shown in Fig. 11. This type of building allows plenty of room inside for work bench, tools, etc., used in making repairs. Here there is sufficient wall space to slide a single door parallel with front wall and needs no special comment. This is the simplest form of hanging

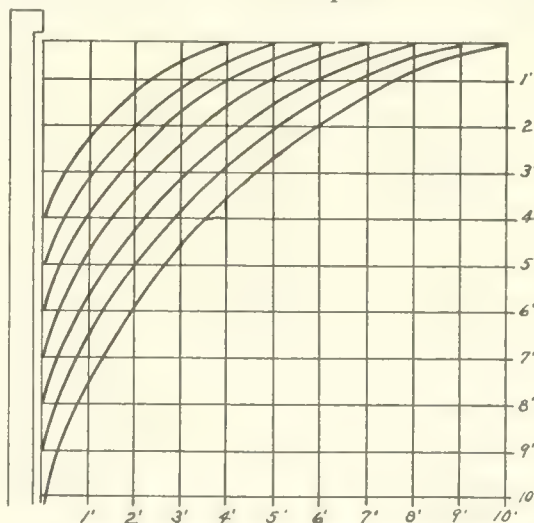


Fig. 14. Clearance Curves for Right Angle Doors of Various Widths.

doors with trolley track and if the door laps the opening from 2 inches to 4 inches, we have a reasonably weatherproof job.

Wide Sliding Doors Arranged in Several Small Units.

If, however, the small swing door is located in the

ally by swinging doors to open position, placing hanger in track and marking the position of the bolt holes.

The bottoms of the doors are held in place at the cen-

front wall or if the wall space is too narrow to slide a single door, several other methods can be used as shown in Figs. 12-9-10-13. Fig. 12 shows one regular sliding door and one right angle door; Fig. 9 shows two doors, one of which slides in a track using a compound curve, while Fig. 10 shows two doors sliding on parallel tracks. These methods have been fully described.

A single right angle door might be used, but if there is not space enough between the car and the door to allow the large door to make the turn, the tracks can be arranged as shown in Fig. 13. A plot of clearance curves for right angle doors of various widths is given in Fig. 14. Referring again to Fig. 13, "2" is a regular right angle door and "1" runs in a curved track. Door



Fig. 15. Both Doors can not be Open at the Same Time

No. 1 is opened first and moved down the sidewall and No. 2 is opened afterwards. The jamb "G" and the head jamb "H" in this case must also be furred out to meet the doors. The front track for door No. 2 and the entire track for door No. 1 are on the same level, while side track for door No. 2 is set above the front track as previously described for corner doors.

Sliding Doors for Two-Car Garages

A few of the larger garages designed for two or more cars will now be considered.

A garage in which the opening occupies the entire front is shown in Figs. 15 and 16. This opening may be closed in several ways: First, if it is necessary to have the entire front open at the same time, the doors may be arranged similar to those shown in Fig. 3 except, of course, that the doors will be larger. It, however, is seldom necessary to have the entire front clear at the same time and the arrangements shown in Figs. 15 and 16 permit the use of half the opening and are preferable because of their simplicity. Fig. 15 shows a column in the centre of the opening and one door hung inside the building, one door outside. Both tracks, of

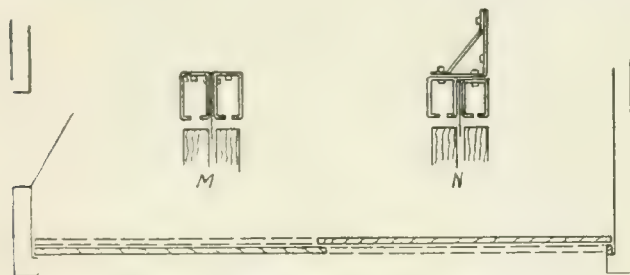


Fig. 16. No Centre Column Present.

course, extend entirely across the front and the doors can be moved to either side. When closed the doors lap the jambs and the column and a good tight job is secured. If there is no column in the centre, the doors may be hung on parallel tracks on the inside of building, using double brackets attached to side of header to support the tracks and the same result is accomplished, see Fig. 16. On rare occasions there may not be headroom enough for the double side wall brackets and in such cases ceiling brackets may be used, attaching either to the ceiling or to the bottom of the head jamb as conditions may require. When using parallel tracks a metal weatherstrip should be used between the tracks

and extending down between the doors, to keep out the weather.

In Fig. 17 is shown an opening closed by two doors on parallel tracks, which extend back along the inside wall a sufficient distance to let both doors slide back to clear the opening. In this case the track for door No. 1 near-



Fig. 17. Two Doors to Slide Back of Side Space.

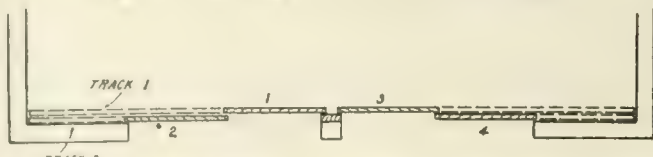


Fig. 18. Both Doors Arranged in two Panels to Slide Back of Narrow Side Space.

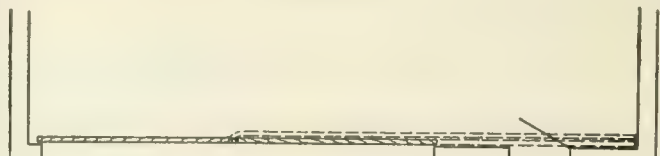


Fig. 19. Doors Slide on Parallel Tracks, but when Open, Close Small Door.

est the wall need only extend as far as the centre of the opening, but the other track should extend entirely across the opening. The jamb at "G" is furred out to meet door No. 2 to make a tight job. In this case a wicket door is shown in door No. 2.

Fig. 18 is another example of parallel doors in which four doors are required, doors No. 1 and 3 running on one track and doors No. 2 and 4 running in the other tracks. In this case the wall space was not wide enough to use the method shown in the previous figure. The centre column should be furred out to meet doors No. 1 and No. 3, but if there should be no column, the same arrangement may yet be used, doors No. 1 and No. 3 butting together. A special locking arrangement is then required.

Fig. 19 is a modification of Fig. 9.

Door Schemes for Three-Car Garages.

Garages for three cars are shown in Figs. 20 to 23, and the methods to be used when necessary to have either one, two or three sections of doors open at the same time. Fig. 20 requires two lines of parallel tracks and three doors, the centre one being hung on the track farthest from the wall. It is then unnecessary to fur out either jamb columns. With this arrangement, of course, only one section of opening is clear at a time.

The next arrangement, Fig. 21, permits two sections of the opening to be clear at the same time and requires



Fig. 20. Three Doors on Two Parallel Tracks.

three lines of parallel tracks, one door running in each track. The jamb "G" should be furred out to meet door No. 3; two weatherstrips should be used at the top to keep out the weather, and guides for the bottom of each door should be provided. Another method of

clearing two sections of the opening at the same time is shown in Fig. 22, where doors No. 1 and No. 3 are right angle doors and No. 2 slides on a track across the entire front of building. This method requires a little more space between the car and the doors.

In rare cases it might be desirable to have the entire front clear, and this may be accomplished as shown in Fig. 23, which is a combination of right angle doors and a third door running on a curved track. Door No. 2 on the curved track is preferably made in two sections hinged together and hung with hangers as described in Fig. 8. To clear the opening, door No. 3 is first moved back along the side wall as indicated and the way is then clear for the operation of the right angle door No.

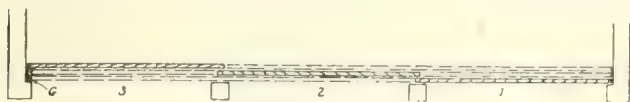


Fig. 21. Three Doors on Three Parallel Tracks.

1 and door No. 2. In hanging door No. 2 the track beginning at point "L" should gradually angle away from the track for door No. 3, this will insure plenty of clearance between No. 2 and No. 3 while making the curve.

The next plan, Fig. 24, illustrates three doors on parallel tracks, all the doors sliding back toward one side when open, leaving the entire opening clear. This method may be used when the wall space is not less than the width of one door. It is not necessary to have the three tracks extend entirely across the opening, the first track need only extend across one-third the opening and the second track across two-thirds the opening.

From the installations just described and the accompanying illustrations the doors of almost any form of garage opening can be provided for. Of course, different combinations of the above methods will suggest themselves to one who has special conditions to meet.

Making Sliding Doors Storm Tight

The next thing to consider is the means for keeping out the weather and this can be accomplished with a reasonable degree of satisfaction.

The doors illustrated in Figs. 1-3-6-7-8-9-11-12-15-19 require no special treatment in this respect, for the

it is impossible to fur out the head jamb at any point, it being necessary for all the doors to slide across the entire opening and anything added to the head jamb would interfere with this. It is, of course, obvious that there will be quite an opening between the top of the door which runs on the inside track and the jamb and this will permit considerable wind and cold to enter. A satisfactory solution of this problem is found in the steel weatherstrips, which may be procured as a part of the door hanger equipment. These weatherstrips are steel plates which extend entirely across the opening and are attached to the tracks. The lower edge extends down between the doors and laps the top of the doors a sufficient distance to prevent wind, rain or snow from getting into the building. The upper edge either extends to the ceiling or heading timber or is bent over above the track to meet the head jamb, thus making a

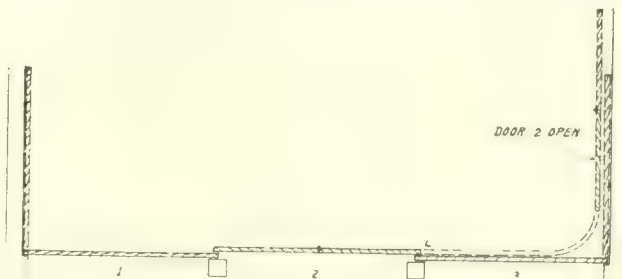


Fig. 23. Arrangement to Clear All Three Doors.

tight job. Illustrations of several of these upper weatherstrips are given in cross section in Fig. 16. "M" is made for ceiling attachment and "N" is adapted for sidewall attachment.

In some cases it may be desirable to provide some means for closing the space between the bottom of the door and the floor. At "O," in Fig. 11, a method is shown which is sometimes resorted to when single doors or two doors running in the same track are used. This is done by simply building the floor of the inside of the building about $\frac{3}{4}$ -inch higher than the doorway and the space where the doors slide. This method is simple and may be effective, but its application is very limited. At "P" is shown an article which serves as a weatherstrip for the bottom of the doors and also acts as a

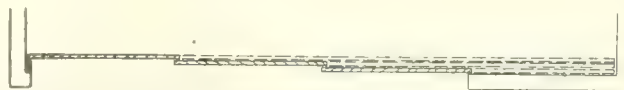


Fig. 24. Wide Opening with Three Doors on Parallel Tracks.

guide and is suitable for any door or any number of doors sliding in straight lines. The floor strips are built into the floor and finished flush so there is no obstruction whatever. In setting these strips a good depth, of course cinders should be provided beneath, as shown, to provide for drainage, unless some other means is more suitable to meet the case in hand. Some means of drainage should always be provided for. The two pieces which form the floor strip are held the proper distance apart by small separators, the space between these separators being left open to the bottom so that any water may easily find its way to the drainage facilities. "R" is a steel strip attached to the door which slides in the opening between the floor strips, thus making a tight job. At "S" the application of these strips to doors operating in two parallel lines of track is shown, both floor strips of course should be the entire length which the doors slide.

No satisfactory bottom strip for right angle doors

(Continued on page 20).

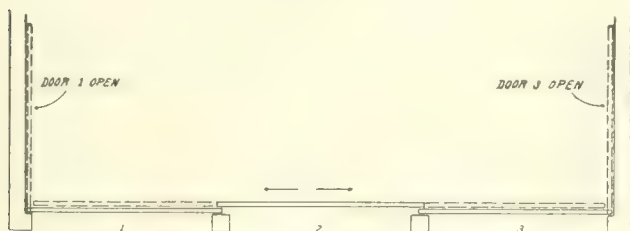


Fig. 22. Two Right Angle Doors and One Straight Slider.

doors will be reasonably waterproof if they are made to lap the side and head jambs from 2 inches to 4 inches. In such of the above doors where two doors are required butting against each other, a material difference will be noted if the meeting stiles are rabbeted or if preferable they may be made in the form of astragals. The doors should be adjusted to run as close to the jambs as practical without chafing. Doors in Figs. 10-13-17-18 can be finished in the same way if one side jamb and a part of the head jamb are furled out as noted above.

Figs. 16-20-21-24 present a different problem in that

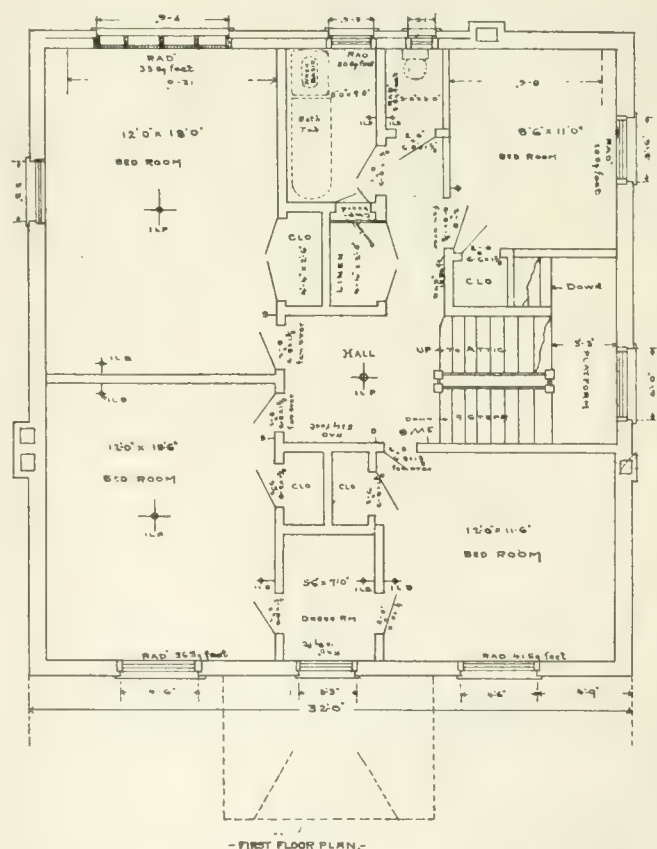


Elevation of a Square-Plan Ottawa House

Builder - E. A. Kemp

THIS is a very attractive home, containing a great many suggestions. Special attention should be given to the many conveniences in the basement and ground floor plans. It is square-plan with a centre front entrance.

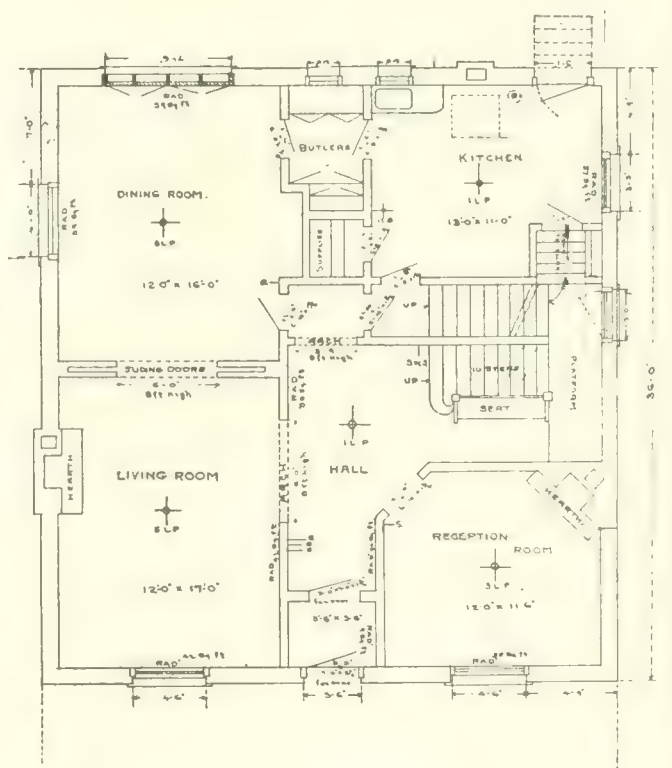
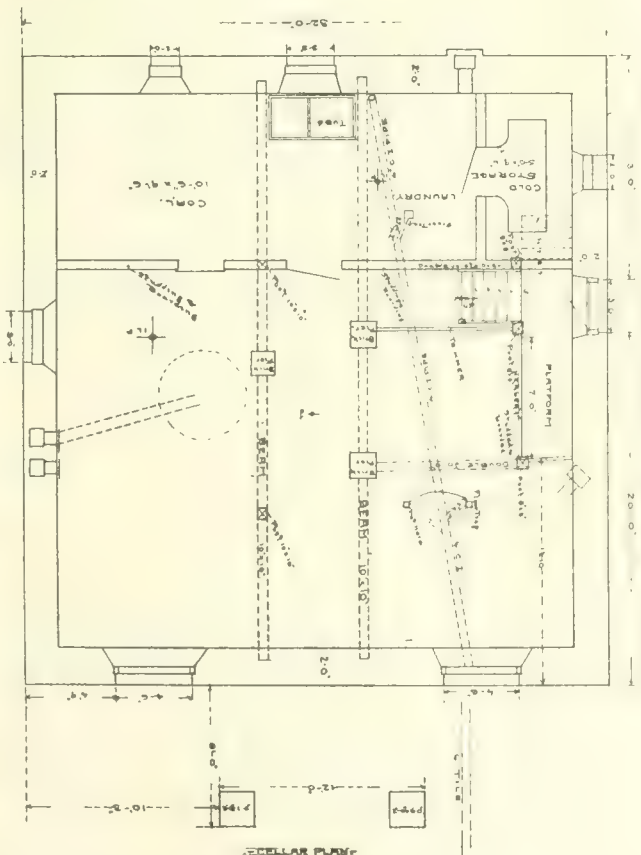
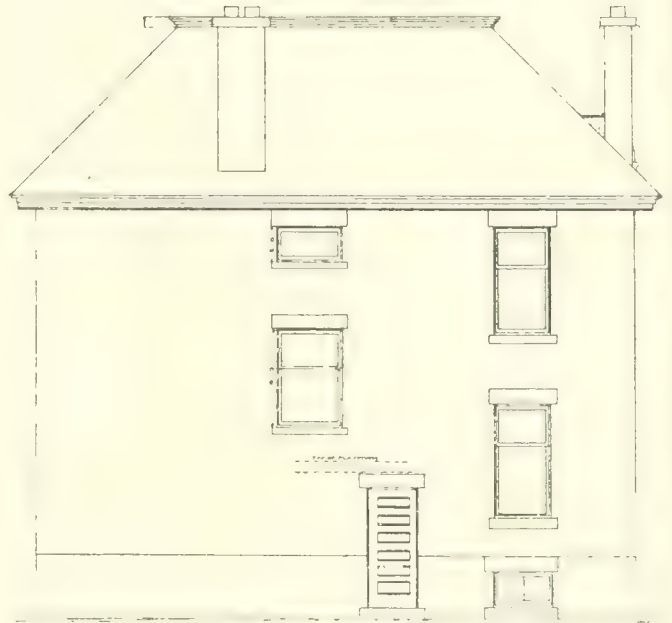
The over all dimensions are 32 ft. x 36 ft.



Elevation of a Square Plan Ottawa House

Builder

E. A. Kemp



Ground floor plan.

(Continued from page 17)

or doors operating in curved track has been devised and by many this is considered unnecessary if the doors are adjusted reasonably close to the floor.

When weatherstrip guides are not used at the bottom of the doors, some other form of guide shoe or roller should be used to keep the bottom of the doors in place. For simple sliding doors, Figs. 6-11-15, a roller of substantial design should be used at points "T," and it is sometimes desirable to place a guide roller on the side of the opening toward which the door closes, but this is better accomplished by means of a binder, as shown in Fig. 25-"V." This binder, which may be placed next to the floor where it will be out of the way, also assists

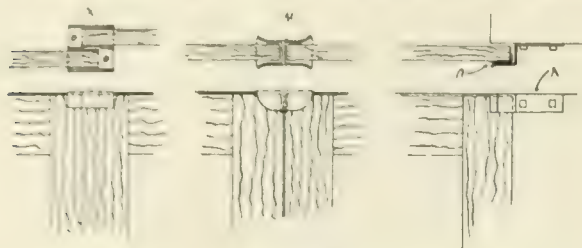


Fig. 25 Details of Sliding Door Stops.

in guiding the door to meet the lock or latch properly. If a shoe is attached to the corner of the door, as shown at "U," the binder will not damage the door at all.

In the centre of the opening, Figs. 1-3-6-12, a centre stop and binder, Fig. 25-"W," should be set in the floor to receive the doors. A double guide about 6 inches in length, Fig. 25-"X," is useful in the centre of the opening when two doors on parallel tracks are used as in Fig. 16.

The foregoing covers pretty generally the best practice for hanging garage doors, and the methods illustrated will meet nearly all requirements, though occasionally some condition may arise which will demand special consideration. It is best in such cases to consult manufacturers who make a specialty of this class of hardware and some suitable scheme can usually be suggested.

❖ ❖

Capacity of Furnaces with Single Register

Frequently in heating a church or school building, it is the practice to use but one register placed immediately above the furnace, and the size of the pipe and register is usually determined by the heating contractor in accordance with the experience he has had with such work. In order to prevent the errors which might naturally be made by the inexperienced man, a heating company has presented the following advice.

"When but one register is used immediately above the furnace, the following sizes of warm-air pipes and registers are recommended, the register faces in all cases to be without valves, so that it will be impossible to shut off the outflow of air heated by the furnace and permit the furnace to be excessively heated with disastrous results.

"An 18-in. fire-pot furnace will fill one 16-in. pipe which should be connected with a 24-in. round register or an 18 x 24-in. register.

"A 22-in. fire-pot furnace will fill one 20-in. pipe which should be connected with a 28-in. round register or an 24 x 27-in. register.

"A 24-in. fire-pot furnace will fill one 23-in. pipe

which should be connected with a 33-in. round register or a 24 x 36-in. register.

"A 26-in. fire-pot furnace will fill one 26-in. pipe which should be connected with a 36-in. round register or 26 x 36-in. register.

"A 28-in. fire-pot furnace will fill one 30-in. pipe which should be connected with a 30 x 36-in. register.

"A 30-in. fire-pot furnace will fill a 34-in. pipe which should be connected with a 38 x 42-in. register.

"When a discharge pipe is very short and runs to the first floor and no register box is used, the pipe can be made the full size of the face plate of the register used."

The capacity of furnaces increase but not regularly through each larger size, and on this basis the sizes given check up closely with the ratings commonly used, whether in the cubic foot capacity or the area of pipes filled.

❖ ❖

Building Operations in St. Catharines

The "Standard," the leading daily paper in St. Catharines, Ont., recently published an item which shows that the builders of that city are adopting the "Business as usual" spirit, and it is the general opinion that if builders and contractors in other centres had the same optimism, conditions in the building trade would not be as bad as they appear to be.

The item was as follows:

A walk about the city Sunday afternoon was a pleasant occupation in view of the fine sunshine following the rain of the morning.

One is struck by the number of houses under course of construction, convincing evidence that the war has not very materially affected St. Catharines.

There are some vacant houses, it is true, and in many cases rents have been lowered, but this is no great calamity in the opinion of the general public, as house rents were too high altogether, and in a good many cases further lowering would be no injustice to anyone.

The houses in course of erection are mostly for occupation by the owners themselves, but there are a number going up for renting purposes.

Some men are going on with buildings more because the war is on than for any other reason, because it gives men work. Such men are real philanthropists, and their action is appreciated.

There are men out of work in the city to-day, but no more than at this season in the ordinary way, it is understood.

❖ ❖

An Oriental Substitute for Cement

In Turkey, where cement is not used, or hardly known, a substitute has been found that has met with rather good results, when applied in exposed places, in filling crevices, in covering joints in stone floors, in fountains, and for numerous other purposes where cement would be required. It is stated to be as satisfactory in water as in exposed places, but it must be allowed to become thoroughly dry before it is submerged. The mixture is slaked lime, linseed oil, and cotton fibre. Generally a hollowed-out stone is used, although a flat, hard surface will answer, and the process is started by pouring the oil on a handful of cotton, after which the lime is dusted in. It is then kneaded until the whole is thoroughly mixed and about the consistency of dough. The more it is kneaded the better it becomes.



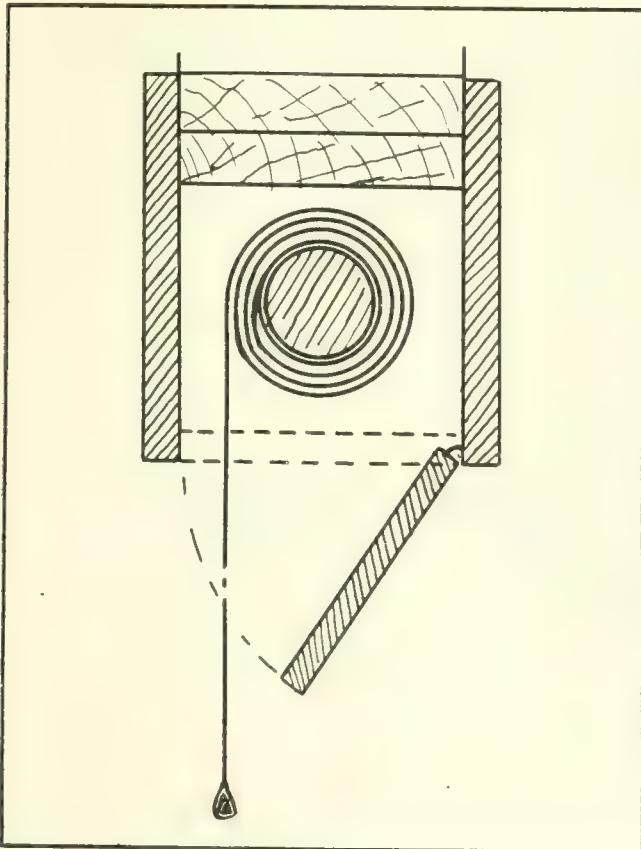
Carpentry and Woodworking



Keeping Dust Out of Rooms Without Doors

In quite a few of the houses being erected to-day it is the custom to have several rooms on the ground floor without doors—merely having the regular opening or a colonnade. While this plan has advantages, it also has one disadvantage in that when house cleaning time comes around or the general once-a-week sweeping is in progress, the dust that is being swept out of the front room and into the hall naturally floats into the other rooms on that floor.

To overcome this, however, I have used a method that has proved satisfactory and this method is shown in the accompanying sketch: The door header is made



Sectional view showing arrangement of curtain in box above door frame

into the form of a box, the bottom of which lowers down by means of invisible hinges. In this box is concealed an ordinary window blind and when the rooms are being swept or on other occasions when necessity demands it, the curtain is lowered and fastened to hooks in the floor. As the curtain is the full width of the door frame, or nearly so, all dust and dirt is kept out.—J. P. H.

Kitchen and Pantry With Special Labor-Saving Features

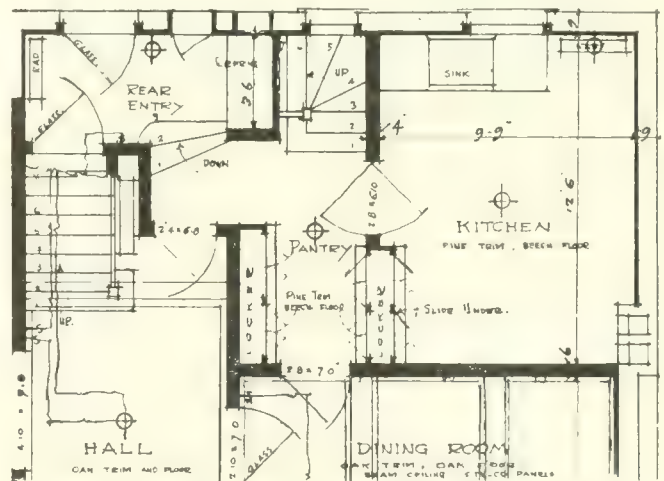
In the accompanying illustration is shown a portion of the ground floor plan of a house I built from plans drawn by Gordon M. West, architect, Toronto. Only a portion is shown because it is in this part that there are features which I think are worth bringing out. To my mind, the layout is an ideal one and contains details that, if worked into every medium-priced house, would take away much of the dreaded kitchen labor and add to the joy of the women of the house.

In the first place, notice the wide rear entry, containing built-in refrigerator and with window over the latter to permit of the ice being delivered from the outside.

The rear door, and also that at the head of the basement stairs, is of glass, thus affording plenty of light.

The rear entry is heated.

The next point worth noting is the wide back hall, off which is the pantry and the back stairs running to the



Portion of ground floor plan of house built by M. B. Jeffery, showing labor-saving features

first floor. The advantage in having the stairs lead from the hall in this manner is that the odors from the kitchen cannot penetrate to the other floors in the house.

The pantry runs through from the back hall and a doorway leads into the dining room. This saves many steps. While the pantry contains the usual cupboards on both sides, the doors on those on the side nearest the kitchen open up into both the pantry and kitchen. Here, again, many steps may be saved, for dishes may be handed from pantry to kitchen, or vice versa, and thus do away with running around and through the back hall. Other features may be noted on sketch.—M. B. Jeffery.

Characteristics of Timber

This table must be used with caution as there is frequently wide variations in any timber.

Description	Tensile Strength per Sq. Inch in lbs.	Crushing Strength Per Sq. Inch in lbs.	Relative Strength for Cross Breaking White Pine equal 100	Shearing Strength with the Grain lbs. per Sq. In.
Ash	11,000 to 17,000	4,400 to 9,400	130 to 180	458 to 700
Beech	11,500 to 18,000	5,800 to 9,400	100 to 144	.....
Cedar	10,300 to 11,400	5,600 to 6,000	55 to 63	.....
Cherry	.....	.....	130	.....
Chestnut	10,500	5,350 to 5,600	96 to 123	.....
Elm	13,400 to 13,500	6,831 to 10,480	96	.....
Hemlock	8,700	5,700	88 to 95	.....
Hickory	12,800 to 18,000	9,000	150 to 210	.....
Larch	20,500 to 24,800	9,200 to 11,700	132 to 227	.....
Maple	10,500 to 10,600	8,150	122 to 220	367 to 647
Oak, White	10,250 to 19,500	4,700 to 9,500	130 to 177	752 to 956
Oak, Live	.....	6,850	155 to 189	.....
Pine, White	10,000 to 12,000	5,000 to 6,650	87 to 93	001
Pine, Yellow	12,600 to 19,200	5,400 to 9,500	98 to 170	286 to 415
Spruce	10,000 to 19,500	5,050 to 7,850	86 to 110	253 to 374
Walnut, Blk.	9,286 to 16,000	7,500	.....	.....

※ ※

Details of Compact Refrigerator

On the farm and in small towns there is always that problem of preserving meats, milk, etc. Herewith are published plans and working details of an outside refrigerator or ice house that is easily constructed and answers all requirements.

To give a good circulation of air in this refrigerator the ceiling should be about two inches higher on the ice side, thus causing the heated air to be drawn up over the ice where it will be cooled and sent down. A trap door should be placed in the ceiling, also, in case it should be needed for ventilation and circulation. The ice box must be strongly built with oak strips to protect

the sides and bottom. Have the bottom of the box pitched the right way for drainage.

Drainage Facilities.

The tile pipe for drainage should be placed before the floor is laid. The drain trap is fastened to the bottom of the ice box, as if underground it will give trouble in freezing. A is soldered to the bottom of the box, and C is fastened to the underground drain. B is the trap and is made to slip up on A, thus freeing it from C, and by turning one-quarter way around can be pulled down from A. This enables one to clean the trap and to protect it for winter.

All air spaces should be as complete as possible and paper smooth and well secured. It will add to the sweetness of the refrigerator to give three coats of white paint, the last coat being one-quarter varnish.

Build in a shaded place and if possible face the building north. The illustration supplies details of insulation.—Family Herald and Weekly Star.

※ ※

A Bunch of Suggestions

Sandpaper will cut old paint quicker if kept wet with benzine.

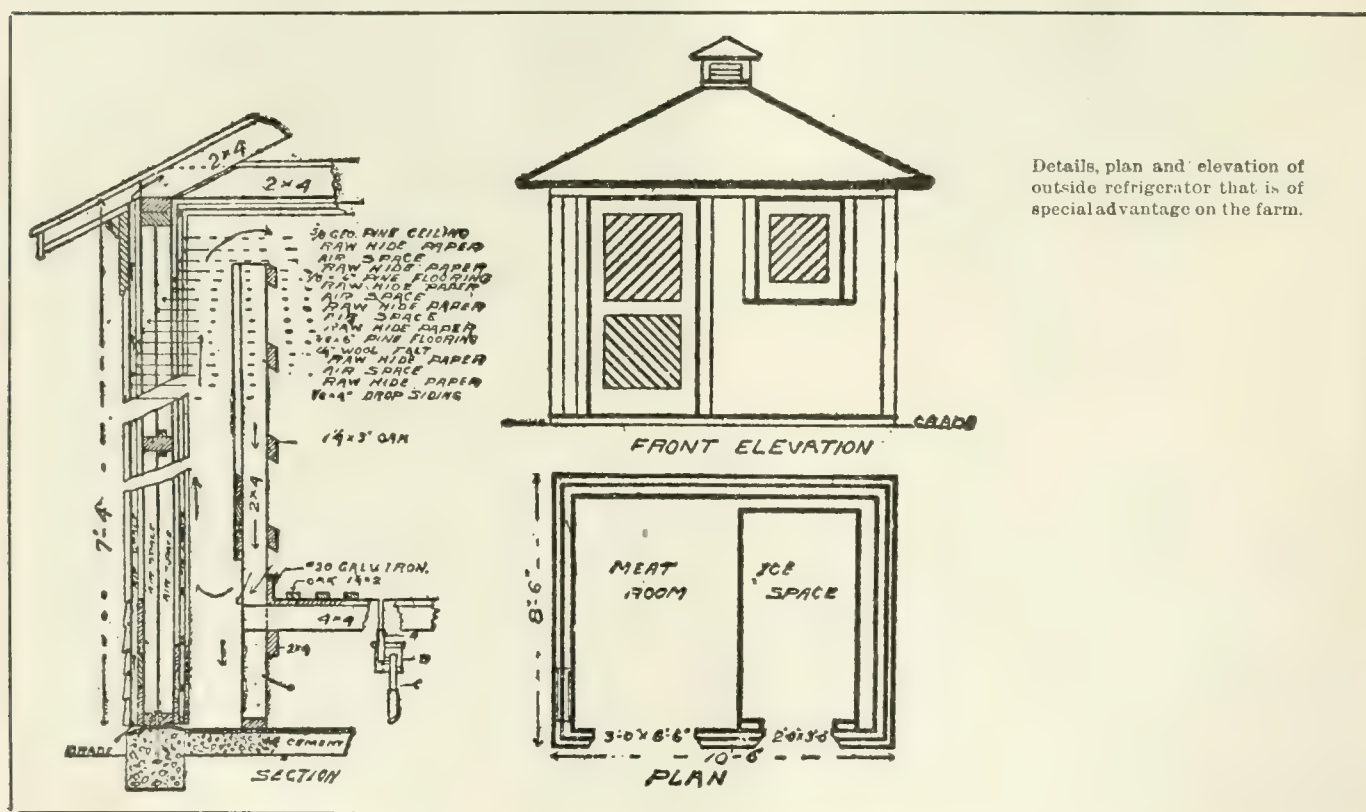
Sandpaper may be kept from slipping under the hand by chalking the back.

If rubber is put under the legs of shop benches, it will deaden the noise of the hammering on top.

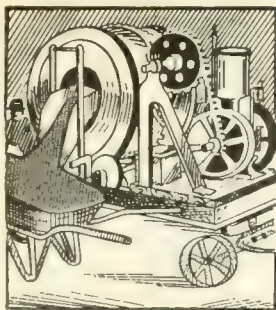
White putty on a black window frame can be made to harmonize by rubbing the fresh putty with a piece of cotton dipped in lampblack.

Safety valves on boilers should be inspected daily or raise steam up to blow-off point every day, as they are liable to become stuck in their seats.

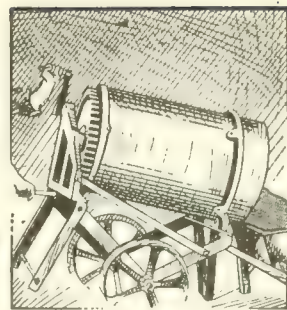
Tight screws holding metal parts together can be loosened by holding a red hot iron on the head of screw. They can be turned easily after cooling.



Details, plan and elevation of outside refrigerator that is of special advantage on the farm.



Concrete Department



Painting Concrete Surfaces

In a paper read before the American Society for Testing Materials, H. A. Gardner presented data tending to show that pure oil paints can be used satisfactorily for painting concrete surfaces either for decoration or for damp-proofing, provided the surface is first properly primed. As a result of a series of tests to determine the durability of various types of paint upon Portland cement surfaces exposed to the weather, Mr. Gardner draws the following conclusions:

"Opaque white pigments, such as basic-sulphate white lead, basic-carbonate white lead, zinc oxide, and lithopone, were present in the paints which gave the best results. In some of these paints there was also a percentage of inert pigments, such as barytes, asbestos, whiting, china clay, gypsum, and silica.

"Concrete surfaces can be decorated with excellent results through the use of high-grade oil paints. When the cement surface is freshly laid and is damp, such paints may be safely applied after treating the cement with a zinc sulphate primer."

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Handsome Concrete Fence at Oshawa, Ont.

In the accompanying illustration is shown the concrete fence that surrounds Prospect Park, in Oshawa, Ontario. This property is owned by Mayor Edmondson, of Oshawa, and is located on North Simcoe Street, at about the highest point in the town. The park has a frontage of 685 feet and covers an area of about 11 acres. (It should be mentioned here that this park fronts on the main street of the town of Oshawa, and is one of the points visited by all visitors.)

Up to the spring of 1913 Prospect Park was enclosed on Simcoe Street side by a low wooden picket fence. This fence was removed, piece by piece, and replaced by the present concrete structure. The present fence was built by Mayor Edmondson's brother, J. C. Edmondson, also of Oshawa, who superintended the construction. There were no plans drawn up to follow in the construction. Mr. Edmondson, with one laborer, did all the work (Mr. Edmondson being a practical man), the plan developing as the work progressed. Work was started in the spring of 1913 and finished in October, 1914.

Construction Details.

The foundations of this are about two feet below the surface of the ground, and consist of footings about two feet wide. On these footings were poured 31-foot sections, one foot in thickness, the forms being made of rough lumber. A groove was left in this base, 2 x 4

inches, with a channel 1 x 6 inches above it, in which were placed the pedestals.

Top Rail.

The top rail of the fence was poured in a single piece, the pedestals placed first on the base and the mould then placed on top of pedestals, with points projecting through to act as a key.

Gateway of the Main Entrance.

The idea of Mayor Edmondson was to have a circular entrance, but his brother saw the difficulty in making circular forms, so worked out the square effect, as



Concrete fence surrounding Prospect Park, Oshawa, Ontario, construction details of which are given in the accompanying article. At the main entrance are four large pillars, similar to the one shown in the centre foreground.

built. The entrance was poured all in one piece and is 50 ft. x 24 ft. The forms for this also were made out of rough lumber.

The iron gates also were designed by Mr. Edmondson and made by a Toronto foundry.

Aggregate.

The aggregate used for the base of the fence consisted of pit run gravel, mixed about 1-6, and poured wet. The pedestals consisted of screened pit run gravel, also in proportions of about 1-6. No finish was given after forms were removed.

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Mineral Colors and Color Aggregates in the Manufacture of Concrete Stone

Mineral colors of the highest degree of purity are the only kind to use in coloring cement. The permanency of shade of color obtained depends upon the elimination by the manufacturer from the color of anything that the cement itself will destroy, for otherwise the ul-

timate result would be cement discolored, which is worse than cement not colored, and this is one very sound reason why the contractor should exercise as much care in selecting color as he would in selecting cement, for no concrete walls or floors look so poor and cheap as when colored with colors that are fugitive and are as unsightly as an unpainted, old board fence.

Few contractors realize that the more intense and brilliant are the colors, the more quickly they fade, and in more instances than one help to disintegrate the concrete, for none of the mineral colors useful in cement is found naturally brilliant or intense, and the addition of chemically prepared colors or the treatment of the native mineral colors chemically, to give intensity, is a positive detriment under all conditions.

Composition of Mineral Colors

Mineral colors, as before stated, occur in a native state, but never pure, being alloyed with other minerals; for instance, iron is found alloyed with nickel; in meteoric forax with arsenic, sulphur, chromium, magnesium, aluminum, etc.; in oxides, silicates, carbonate, etc.; and the most valuable of these are the oxides and silicates, and the color chemist produces therefrom such colors and shades of the colors as red, yellow, brown, black and dull green, and from other metals and combinations are also obtained bright greens, blues, purples, reds and blacks.

Do not use color that necessitates more than 8 per cent. to 10 per cent. in the mix, based on the weight of cement. Usually 6 per cent. is enough, because an excess of coloring matter positively displaces the sand and grit and reduces the bonding power of the cement.

Avoid colors which, when shaken well in a tube or glass of water, permanently discolor the water, for such colors will fade, run and streak; also eliminate chrome green and chrome yellow and similar brilliant paint store colors, for they (many of them) will fade almost before the concrete has set.

Free sulphur or an excess of combined sulphur in reds, browns, etc., are evidenced by the colored concrete turning darker and having a muddy or soiled appearance.

Buy Quality Colors

Do not blame the building material dealer for selling colors like the foregoing if you have insisted upon buying for price and not for quality. Insist upon obtaining samples of better colors to try out, and if they cost more, they will (and this seems paradoxical) in the end cost less, for you will use a smaller quantity and obtain richer, more lasting effects. The results will be mild or soft tones that are more natural, and your concrete will be more like native stone, in natural shades, blending with the surroundings and enhancing the architectural effect. What is more unnatural or objectionable than an intense red, blue or yellow in a wall?

The use of white sand is, of course, necessary when you want a color to be more prominent and is really essential in using green for decorative work in walls, so that the green is effective; and in floors when green is used for the field, with a milder green, red or other color in the border.

All true cement colors will withstand acid treatment (1 part of acid to 5 parts to 6 parts of water) scrubbing and troweling, but in polishing after being set, and trowel polishing before being set, special care should be taken when yellow, green and similar colors are used, for the metallic polishing is likely to darken the

color. Never give a smooth finish to outside concrete walls when color is used.

Samples Should be Obtained

The contractor should obtain samples of the best colors, consulting his cement and material dealer, or any cement manufacturer, and make as many stucco pieces, concrete block, brick, floor squares, etc., as his ideas of shades to be obtained suggest, making them in duplicate, keeping one of each in water, the other protected from direct sunlight for 28 days, and then give all as long an exposure test as he can before again using cement color, to satisfy himself by actual practical trials what colors are apparently stable and what shades are soft, yet effective, and base his color schemes thereon, and he will not make any errors.

In combining two or more colors to obtain a desired shade, try to use colors of the same specific weight in order that in the mix they do not separate or show a lack of uniformity of the shades to be developed.

Many contractors do not make a thorough mix; by this we mean they do not mix the color well into the mass and when it sets and dries out to a lighter shade they think it has faded and blame the color when their own carelessness is the cause.

Proportion of Coloring to Use

The standard proportions for colors generally used are 6 to 6½ lbs. of color to every 100 bbls. of cement. The amount of color can be increased if a deeper shade is desired, always bearing in mind that you should not use more than 10 lbs. of color to every 100 lbs. of cement, for an excess of color reduces the binding power of cement. The color, if thoroughly mixed with the other ingredients dry, and water then added, will form a homogeneous mixture in the mass, thereby always producing uniform and durable results.—J. H. Jackson, in *Concrete-Cement Age*.



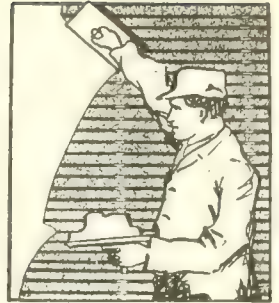
Dry Mixing Concrete in a Batch Mixer Before Adding Water

Is concrete any better when the materials are turned in the batch mixer a few revolutions dry before the water is added than it is when made in the same mixer when the water is put in either first or with the materials?—E. A. F.

With a batch mixer, where all materials are thoroughly incorporated, there is no advantage in dry mixing in advance of wet mixing. It tends to make the mixer clog more than if differently done. Where materials are added separately it has been our practice to add first stone and water, which somewhat scour out the previous batch in the mixer, then cement, and sand last. Where all materials are fed into the mixer at once from a charging hopper, we turn on the water just as quickly as the materials begin to flow into the mixer. Thus you will see that in our practice we always do wet mixing. The Boston Transit Commission made some tests many years ago, taking concrete from the actual work and comparing it with similar materials mixed in a laboratory, and usually found that the materials from the actual work showed stronger results than laboratory mixed, which is an argument in favor of wet mixing, or we can at least say that there is no injury from omitting dry mixing in advance of wet. I think this desirability of dry mixing applies to hand mixing only.—Leonard C. Wason in *Concrete-Cement Age*.

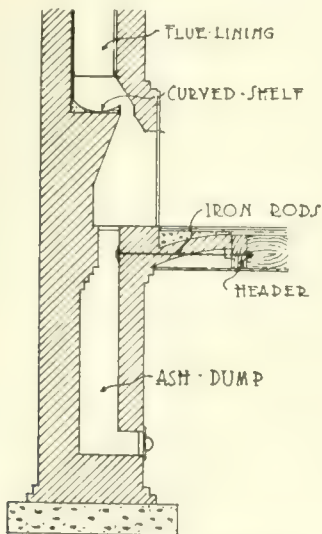


Brick Work *and* Plastering



Good Method for Building Fireplaces

The accompanying illustration shows a good method for building fireplaces. The shelf at the back, curving upward, has a tendency to deflect down draft, which otherwise drops into the fire. The fireplace opening should be carefully proportioned to the size of the flue. With many architects and contractors it is the practice to make the area of the fireplace throat one-tenth the



Sound fireplace construction.

area of the fireplace opening. This rule has been found to produce good results, a long narrow throat being given preference over a short wide one.



Bricklaying in Freezing Weather

Brickwork in lime mortar should not be laid in freezing weather. If the temperature is below 40 degrees Fahrenheit and liable to fall below 32 degrees at night, salt should be mixed with the mortar, the bricks heated before laying, and the top of the wall covered with boards and straw at night. If the mortar at any part becomes frozen, the courses in that part of the wall should be removed and cleaned before the bricks are used again.

Cement mortar is not injured by frost after the first set has taken place. It may be used in freezing weather if precautions are taken by heating the materials, by protecting the walls, or by the use of salt, to prevent freezing before the set has taken place, otherwise a sudden thaw is liable to soften the mortar and cause settlement. It is not considered good practice to attempt to lay bricks in temperature below from 17 de-

grees to 23 degrees Fahrenheit unless the walls are in warmed enclosures.

Lime in the mortar retards the setting, and mixing the mortar with hot water hastens the set and keeps the walls warm longer. Salt amounting to one-fifth per cent. to six per cent. of the water by weight will prevent frost, but is objected to by many on account of a resulting tendency to efflorescence. Higher percentages retard the setting and reduce the strength at short periods. In any case the bricks should not be freezing cold, nor wet, and they must at all times be clean.—Exchange.



Reducing Fire Risk in Chimneys

Fires in houses may come from outside or inside sources, but of all ways to start a fire from inside the house none is more prevalent than by means of an imperfect chimney or improperly installed heating apparatus. Somehow this chimney department of the house often escapes the lynx eyes of the architect. Knowing though he does the importance of a well-built chimney, the carelessness of workmen or the cheap building methods of an indifferent contractor frequently get by him, and after the house is completed there is suddenly one day a hurry call for the fire department.

Chimney fires, so prevalent that insurance companies are now engaged in a campaign of education toward sound chimney construction, are, in a large percentage of cases preventable, being directly traceable to bad construction. An analysis of average chimney building places ordinary construction very much below the par of sound construction. Only too often nothing but Providence stands in the way of disaster, and the fact that the house doesn't burn down is largely a matter of luck, though owner, architect, and builder may think they are getting a good job.

One reason why chimneys so frequently fail is because they are so often neglected in supervision. How many building superintendents inspect chimneys, foot by foot, as they go up, to see that every joint is properly chinked with mortar and all flues made tight? How many examine carefully the distance between every timber and the chimney, requiring proper air spaces between?

How One Man Nearly Lost His House

As an instance of the narrow escape one owner had from losing his house by fire, a true story is told in the office of an architect. After completion of a job built during the summer—a fair-sized house in the suburbs—the owner complained to the architect that his chimney smoked badly. Upon using his fireplace during the first cool days of fall, he found the draft poor, and after the fire was fairly well started the whole flue seemed to blaze up inside. The architect went over one

evening to look up the complaint. He built a fire and, sure enough, no matter how carefully wood was stacked to improve combustion, smoke puffed into the room. After a time the interior of the flue just above the fireplace throat seemed to catch fire. The architect was puzzled, but, getting down on his hands and knees, and peering up the chimney, he was horrified to see the charred end of a timber sticking through the flue. In building a stair landing which rested against the chimney on the reverse side at a point just above the fireplace, workmen had carelessly allowed one of the timbers to project through the chimney into the flue, and only accidental discovery prevented a serious fire. Some chimneys are fearfully and wonderfully made, all kinds of crooks, curves, and other stunts finding their way into the construction, to say nothing of galvanized iron chimney-pots or badly-pointed brick tops.

Carelessness in Architects' Offices

When preliminary studies for a building are made in the office of the architect, frequently chimneys are hastily sketched in, and when working drawings are made it is difficult to place the flues where wanted, owing to some architectural arrangement which does not permit the chimney to run up straight and true as it should. Too often, the shape of a chimney and size of flues are left to a draftsman, who, to avoid troubling his head about it, slaps chimneys in hastily, trusting to the skill of the building superintendent to get them built somehow.

A Practice to be Condemned

A custom which prevails in many towns, that of building a single flue chimney with but four-inch walls, is greatly to be condemned. Even when flues are conscientiously plastered inside from top to bottom such construction is poor from the standpoint of fire risks, because plaster soon cracks and lets go, sometimes large chunks falling down inside. When this happens slight leakage of air in a poor joint in the brickwork allows fire to get at the framework of the building.

As a matter of fact, a single flue chimney is rarely good construction, even for a kitchen range. In the first place, the slender spire of a single flue sticking above the roof looks cheap. In the next place the stability of a chimney with a single flue is questionable when one considers how much greater the length exceeds the area. Every single flue chimney leans one way or the other after a few months, breaking the bond in joints and making a place for flames to penetrate to the framework of the building.

Construct Two Flues

No chimney should ever be built smaller than two flues. If but a single flue is needed, build two flues just the same, using the extra one for a vent flue, if there is no other use for it.

Instead of plastering the inside of flues, use good hard-burned terra-cotta flue lining. Even in a cheap job it pays to build well in this manner, for the fire risk on a cheap job is proportionately as great as on a more expensive job. No one wants his building to burn down, whether it be low or high in cost, so no greater risks should be taken with a cheap building than with an expensive one. As a matter of fact, flue lining costs so little more than plaster it is usually worth while to pay the difference.

A straight, solidly-built chimney with no kinks or

crooks is a piece of work that any architect or builder may well be proud of. Flues in such a shaft are bound to give the best draft, and they are, besides, free from fire risk. In addition to these advantages there is the excellent architectural appearance of a good straight column of brick, large enough to stand squarely upon its own base.

Make Framework Self-Supporting

With a well-built chimney, having flues properly lined with flue lining, and in which no timbers in the building come in contact with any flues, a reasonably good job is insured, though many builders go beyond this and see to it that no timbers touch even the exterior walls of any chimney. Probably the best construction is to make all parts of the framework of the house self-supporting, eliminating any structural aid from the chimneys. Thus no timber is nearer than an inch or two from the chimney shaft. Many architects specify their work in this way.

An Excellent Practice in Chimney Construction

At the point where a chimney goes through the roof an excellent practice prevails in some localities. It is frequently the custom to increase the thickness of the walls of the chimney at this point from four inches to eight inches, by corbelling out just under the roof. This method has two advantages; it gives the chimney a better architectural appearance, and at the same time the thicker wall is enabled to withstand the ravages of time. Every architect or builder who has been called to account for a rapidly disintegrating chimney top will appreciate the value of eight-inch walls over four-inch. Many architects call for eight-inch walls all the way up.

For a well-built chimney it seems to be the custom to insert a brick partition between flues, even when flue lining is used. Sometimes in large chimneys, when there are many flues, these brick partitions are omitted to save space, the shells of the flue linings themselves being deemed sufficient. In small chimneys, however, the increased support given by brick partitions is needed.

For Fireproof Houses

Of course, the fireproof house offers many opportunities to use a different type of chimney construction. In best work, however, it is rarely the custom to cut down on chimney construction on this account. Stability alone requires good construction, even when fire risk is reduced, as in a fireproof building. Although there is no particular disadvantage in supporting fireproof floor construction on the shaft of a chimney, in practice the floor is frequently made self-supporting around the chimney shafts, just as in frame houses. It is usually possible to do this, spacing floor panels so that they will span from main bearing walls.

Our ancestors knew how to build good chimneys. Straight, solid shafts of brick they were, so enduring that one can find many of them standing in old country towns, even though now the frames of the buildings have long since rotted away. Modern chimneys are hardly glorified to the extent of those of long ago (in which there sometimes appeared to be brick enough to build an entire house), but we can well take a few lessons in honest construction from the builders of yesterday.

How to Tell Good Fireplace Construction

Although fire risk is not necessarily increased by a

smoky fireplace, risk of losing one's reputation is great in such a disaster. Countless builders and architects have grown grey-headed trying to explain why their fireplaces smoked and how fireplace faults might be corrected. You can tell by glancing at any fireplace after it has been in use a few months whether it "draws" or not. A straight line of soot at the back always indicates a properly working flue. Smoke or soot on the face of the mantel or out near the fireplace indicates failure.—Chas. E. White, Jr., in "Building Progress."

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75th Year of Henry Disston & Sons

In 1850 a crude little shop was opened for business by Henry Disston, which became the nucleus of the present large factory, consisting of 58 buildings, covering 50 acres of ground and employing 3,600 men devoted to the sawmaker's art. The growth, Mr. Disston stated, was due to "good steel and honest work."

To secure a steel exactly suited for the work a steel plant was erected in 1854. Twelve years later a file works followed, which now supplies 35,000 dozen files a year for their own use in the manufacture of files.

When Henry Disston died, in 1878, his sons succeeded him, and his descendants are to-day at the head of the business.

Three generations of Disstons have administered the company's affairs since its establishment. And as a sidelight on the respective attitudes of employers and employed, it is interesting to note that a score of men have been with the company over fifty years, and in several instances three generations of the same family work side by side.

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How to Prevent Stucco From Cracking

A good way to prevent stucco from cracking is to neatly set up forms upon the outside of the walls before building, having the inside of the forms flush with the sill when ready for the lath. Have ready a lot of 2x2's with long spikes let into them with heads flush.



How to prevent stucco from cracking.

Nail to the inside of the forms from the outside and bed the spikes in the wall as it is built, all as indicated in the accompanying sketch. When ready, nail perforated lath on these studs and on the sill. Contraction cracks seem to come anywhere and any time.

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Montreal Exchange Officers

Mr. John Quinlan, of the firm of John Quinlan & Company, was elected president of the Montreal Builders' Exchange at the 17th annual meeting, held January 25, in the exchange rooms, 52 Victoria Square. The other officers elected were: First vice-president, E. W. Sayer; second vice-president, Ald. J. B. Barbeau; directors, John Allan, general contractor; R. F. Dykes, stone contractor; J. H. Hand, building contractor; W. M. Irving, brick and masonry; J. J. Roberts, carpentry and

millwork; W. Bonnell, brick contractor; J. E. Walsh, contractor; R. S. Muir, mantel and tile; W. E. Potter, master plumber; Alex. Bremner, Jr., builders' supplies. David K. Trotter was elected secretary-treasurer.

More than half of the members of the new board are new to the directorate, only five of last year's members having been re-elected. The slate of the nomination committee was elected by acclamation.

When the results were announced Mr. Gilday, the retiring president, installed his successor in office, after which the usual votes of thanks and speeches were made.

The financial statement showed a small surplus, which was considered very satisfactory.

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Quebec Architects' Convention

The 24th annual convention of the Province of Quebec Association of Architects was held in the association's rooms, 5 Beaver Hall Square, Montreal, on January 16.

Officers were elected as follows: Past President, W. S. Maxwell; president, Joseph Perrault; first vice-president, E. B. Staveley; second vice-president, Hugh Vallance; secretary, J. Emile Vanier; treasurer, D. Norman MacVicar; Councillors, E. Payette, Frank Peden, D. H. Macfarlane, U. J. Asselin and E. T. Barott.

Owing to the war, the association cancelled its annual banquet and devoted the sum of \$85 to charitable purposes.

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Annual

Convention of Alabastine Company's Salesmen

The annual convention of salesmen of the Alabastine Co. was held in Paris, December 29 to 31, 1914. This marked the 29th anniversary of the first manufacture of alabastine at Paris, Ont.

Improved new color and display cards were shown at the convention. These are for the travelers to carry with them and for dealers' displays. Plans for new advertising were also laid before the travelers for discussion. Many new ideas are being incorporated and every means being taken to assist the salesmen in their work.

One feature of the convention was the publicity and selling talk of Mr. Chas. C. Nixon, a well known publisher. He went into detail, giving facts and demonstrations as to how the travelers may help the dealers in the trade to better business, his remarks all being directed towards the greater possibilities in real, worthwhile service, that will help the dealers to sell more goods, and to make them greater profits for themselves.

The salesmen were very enthusiastic over the prospects for the spring business of 1915.

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One of the strict rules of every institution using electric lights should be to prohibit the hanging of wires over nails, steam pipes or even wooden pieces, because there is a chance to wear through the insulation and cause fire.

They used to call it system, then they named it efficiency, and now it is about time for a new handle, but it will be the same old question of how to do more and better work at less cost.

A lie not only indicates poor morals, but it shows poor headwork.

News of Builders' Exchanges

London Exchange Annual Meeting

Members of the London Builders' Exchange, at the 17th annual meeting, which was held on January 18th, named delegates to attend the meeting of the Provincial Association of Builders' Exchanges, at Ottawa, in February, and instructed them to bring before that body a number of questions respecting the Workmen's Compensation Act.

A resolution was passed declaring it the opinion of the London Exchange that building permits should not be issued to any contractor for any piece of work unless he had paid his Workmen's Compensation Assessment, and that each permit should have printed on it the liability of the contractor in case of accident during the construction of that building. These ideas will be presented to the city council at once.

President T. R. Wright was in the chair, and gave an address reviewing the conditions of the year that has passed, which, he said, had been satisfactory for the various building trades in this city. The program he outlined for the year dealt mainly with the proposed adjustments of building regulations, which were considered necessary to accommodate the Compensation Act.

Officers were elected as follows: President, T. R. Wright; first vice-president, A. C. Nobbs; second vice-president, F. G. Tulett; secretary-treasurer, F. S. Barclay; directors, T. R. Wright, A. C. Nobbs, F. G. Tulett, E. R. Dennis, Geo. S. Gould, L. H. Martyn, John Whitaker, Thos. Beer, and Henry Hayman; representatives to Western Fair, Harry Stratfold and G. C. Young; delegates to the Provincial Association Convention, Geo. S. Gould, E. R. Dennis, A. C. Nobbs, and T. R. Wright; auditors, Thomas Jones and E. G. Gerry.

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Annual Meeting of Toronto Exchange

On January 18 the annual meeting of the members of the Toronto Builders' Exchange was held in the association's quarters, in the Goodyear Building. A large number were in attendance, and the reports of the different officers were read and adopted as satisfactory.

In his presidential report for 1914, Mr. Chas. Bulley referred particularly to the Workmen's Compensation Act, and reported the progress that had been made by the board of directors and committees on this question. One of the points gained was that the members were given the opportunity of making their payments into the compensation fund in two installments.

The exchange has gone on record as being in favor of the establishment of free labor bureaux.

During the year, it was pointed out, the sheet metal workers have been formed into a new section of the exchange.

Feeling reference was made to the death of the late James Wickett, one of the oldest members of the exchange.

During the meeting many interesting matters were brought up, and these were referred either to special committees or to the Provincial association. One of these was the Accident Prevention Association. This

was referred to a special committee, to be taken up with the Provincial association.

A resolution was passed that immediate past presidents of the exchange be appointed to the board of directors.

Reports showed that the exchange had subscribed \$1,000 to the Canadian Patriotic Fund. This, together with individual amounts subscribed by members, totals an amount between \$8,000 and \$9,000.

New Officers

New officers were elected as follows: President, George Oakley, Jr.; 1st vice-president, S. R. Hughes; vice-president, H. Rayment; second vice-president, J. Aldridge; secretary, A. E. Flower; directors, Edward Gearing, Charles Bulley, George Gander, Fred Armstrong, A. Matthews, W. E. Dillon, A. E. V. Hemmingway, William Pears, Walter Page, Harry Taylor, S. H. Hurst, and A. Welch. Walter Page will represent the masons' section; Harry Taylor, plasterers'; S. E. Hurst, cut stone contractors'; A. Welch, carpenters'; and A. Matthews, sheet metal workers'.

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A Caning at Hamilton Exchange

At a recent meeting of the Hamilton Builders' Exchange advantage was taken of the opportunity to present the retiring president, George Clapham, with a gold-headed stick, the past vice-president, George Metcalfe, making the presentation in a very neat speech, to which Mr. Clapham replied very gracefully.

C. T. Pearce, president of the exchange, presented, on its behalf, a handsome pearl pin to George T. Davidson, the retiring secretary, who is leaving Hamilton to take a course at the Ontario Agricultural College.

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Annual Meeting of Winnipeg Exchange

The annual meeting of the Winnipeg Builders' Exchange was held in their executive offices in the Tribune Building, early in December, when the various yearly reports were presented and the officers for the ensuing year elected.

This association has grown at a remarkable rate since its inception in 1901. The first business of the exchange to be transacted was done in the Lecky Building, on McDermott Avenue. The membership was then under fifty, while the present membership is about 250. The present offices indicate the rapid growth and prosperity of the exchange. A whole floor of the Tribune Building is rented, a portion of which is sub-let to members of the exchange. The executive offices comprise a large meeting room, and private office for the secretary on the second floor, while on the third floor are situated the board room, directors' room, and figuring room, all of which are handsomely furnished. In the year 1910—the 10th March to be exact—the Winnipeg Builders' Exchange was incorporated.

The secretary's report showed that the finances of the organization were in a healthy condition. The picnic last year was a huge success, almost 400 making the trip. It is understood that this outing will be a permanent feature in the social events of the association.

The election of officers for 1915 resulted as follows: President, W. P. Alsip, of the Alsip Brick and Lumber Company; vice-president, Geo. D. W. Sharpe, of C.

W. Sharpe & Sons; second vice-president, Laurence C. Kelly, of Thomas Kelly & Sons; treasurer, Thomas D. Robinson, of T. D. Robinson & Sons, Limited; directors, P. Muir, manager of J. McDiarmid Company; W. H. Carter, president Carter-Halls-Aldinger Company; S. S. Smith, sales manager of Lake Winnipeg Shipping Company; James Mackie, president James Mackie Company; John Sutherland, manager of the Sutherland Construction Company, and W. J. Davidson, general contractor. Mr. A. M. Rose was re-elected secretary.

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Victoria Exchange Meeting in March

The annual meeting of the Builders' Exchange of Victoria, B.C., will be held early in March.

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New Officers of Medicine Hat Exchange

At the annual meeting of the Medicine Hat, Alta., Builders' Exchange, held early in January, officers were elected as follows:

Geo. F. Hotson, president (re-elected); J. P. Marsh, first vice-president; C. L. White, second vice-president; R. A. Bond, sergeant-at-arms. Chas. E. Dyce, past secretary, was re-appointed for the next year.

The exchange is in good financial condition, and has one of the best appointed meeting rooms in Alberta. Besides three private offices for the use of members, there are two pool tables (free to members and their friends) and a circulating library in the main meeting room.

There are over sixty members on the rolls.

Building operations are naturally quiet, but there is likely to be a fair amount of activity in the early spring.

The new post office building is almost ready for the roof, work now being held up by the unfavorable building weather.

The Maple Leaf Milling Co.'s plant, erected at a cost of approximately \$200,000, with a capacity of 2,000 barrels a day, will start operations shortly. This is the third large mill to be located in this city. The Ogilvie Milling Co. has a capacity of 3,000 barrels per day. The Lake of the Woods Company, formerly the Medicine Hat, has a capacity of 2,000 barrels a day.

Among the other public buildings completed last year may be mentioned the Catholic convent, a very up-to-date three-storey building.

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Quebec Exchange Elects New Officers

The annual meeting of the Builders' Exchange, at Quebec, Que., was held on January 11th. Reports submitted by the officers were satisfactory and the organization was shown to be in healthy condition.

New officers were elected as follows: President, C. Emile Morissette; vice-president, L. H. Peters; secretary-treasurer, Alph. Cote; directors, E. T. Nesbitt, P. A. Lamonde, Emile Cote, J. A. Marier, H. Lemieux, Joseph Villeneuve, Alexander Fackney, Napoleon Gignac, O. Chalifour.

At the meeting it was decided that the association would not have its sixth annual banquet on account of the war, but would, instead, subscribe the amount of \$150 for a bed to the Canadian Military Hospital in France.

Annual Meeting of Chatham Exchange

The annual meeting of the Chatham Builders' Exchange was held on January 8, when the following officers were elected: President, Albert Tomlinson; first vice-president, H. Rayment; second vice-president, J. A. Hildreth; treasurer, Thomas McKie; secretary, S. G. Kinsey; directors, W. H. Robertson, Thomas Wangerheim, G. H. Tipplehorn, Frank Sparks, Robert Mitchell, Fred Mitchell, John Campbell and A. M. Burtch.

There is a more lively interest being taken in this exchange on account of the Workmen's Compensation Act and other matters.

There also is a proposition to affiliate with the Provincial Association.

A committee has been appointed to increase the membership of the exchange.

✱ ✱

Honor to Retiring Secretary of Montreal Exchange

On the eve of his retirement from the secretaryship of the Montreal Builders' Exchange, a position he held for two and a half years, R. L. Werry was presented with an illuminated address and a purse of gold.

President Thomas Gilday made the presentation.

✱ ✱

Officers of Builders' Exchanges

WESTERN DISTRICT

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Swift Current, Sask.—Jno. McIntosh, Box 268.

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Victoria—D. B. Plunkett, 503 Union Bank Bldg.

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Chatham—S. G. Kinsey, 14 Fifth St.

Guelph—Mahoney Bros., General P.O.

Hamilton—G. T. Davidson, 325 Chancery Chambers, Main Street East.

Kingston—E. R. Beckwith, C.E., 292 Earl Street.

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Ottawa—J. S. C. Adamson, 126 Sparks Street.

Sault Ste. Marie—MacPhail & Wright Cons. Co., P.O. Box 825.

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St. Thomas—E. O. Penwarden, 1 White St.

Toronto—A. E. Flower, 154 Simcoe Street.

Windsor—A. E. Paddon, 163 Louis Ave.

Montreal—David K. Trotter, 52 Victoria Square.

Quebec—A. Cote, 23 Rue St. Jean.

Halifax, N.S.—H. Roper, care of S. M. Brookfield, Limited, 58 Granville Street.

St. John, N.B.—Charles F. Stevens, Builders' Exchange.

Price List of Building Materials—Revised to Date

EDITOR'S NOTE—Great care is exercised in obtaining prices for this department. They are as accurate as it is possible for us to make them. We know, however, that because of varying conditions, different dealers' prices are bound to vary somewhat; and our purpose in publishing this department is to give readers an idea of prices, rather than absolutely definite information.

In some cases a range of prices appears. This is given to cover the variation in quotations given by different dealers, and also to cover slight variations in conditions of measurement or purchases, which space will not permit us to specify in detail.

We will be glad to give readers prices on materials not appearing here (hardwood flooring and hardware trim for instance), and also the names of dealers from whom such materials can be obtained. Such information will be supplied promptly if you write us specifying in detail what is desired.

PRICE AT MONTREAL

Hemlock Lumber

2 x 4 in. to 2 x 12 in., 8 to 14 ft.	\$24.00
2 x 4 in. to 2 x 12 in., 16 ft.	26.00
2 x 4 in. to 2 x 12 in., 18 ft.	28.00 to 30.00
1 in. hemlock No. 1	22.00
No. 1 hemlock decking	23.00 to 25.00
No. 2 hemlock dimensions and 1 in. ...	26.00 to 30.00

Pine

1 in. common and better pine 8 to 12 in. wide, rough	\$32.00 to 40.00
2 in. white pine, mill stock	29.00 to 33.00
3/4 x 8 and 10 in. pine shelving	36.00 to 45.00
3/4 x 12 pine shelving	42.00 to 50.00
No. 1 white pine flooring	40.00
No. 1 spruce flooring	30.00
No. 1 pine decking, D2S	40.00
No. 1 pine V. or beaded sheeting	40.00
No. 2 pine V. or beaded sheeting	30.00

Pine Trim for Paint Finish

4 in. casing, per 100 ft.	\$1.75
5 in. casing, per 100 ft.	2.10
8 in. pine base, per 100 ft.	3.25
10 in. pine base, per 100 ft.	4.20
4 in. pine window stool, per 100 ft. ...	2.75

Shingles, Lath Roofing, Etc.

No. 1 pine lath	5.00
No. 2 pine lath	4.50
No. 1 spruce lath	4.00

Cedar Posts—Fence

5 in. at small end	5c. foot
7 in. at small end	7c. foot

Hardware

Nails, wire, common	\$2.30 base keg
Nails, cut, common	2.50 " "
Sash weights, cast iron	1.50 per 100 lbs.
Tarred felt paper .....	.43 roll
Building paper .....	.35 roll

Brick, Tile, Terra Cotta, Sewer Pipe

No. 1 dry pressed red bricks	17.00
No. 1 dry pressed buff bricks	21.00
Red stock bricks	11.50
Grey stock bricks	12.00
Wire cut brick for foundation work....	10.00
Fire brick	25.00
Sewer pipe, 4 inch	10c. foot
Sewer pipe, 6 inch	15c. foot

Price at Montreal—Continued

Cement, Plaster, Stone, Etc.

Cement (bags extra)	1.90 bbl.
Sand, for cement or brick work .....	.95 ton
Lime .....	.38 per 100 lbs
Hydrated lime	10.00
Mortar color	5.00 bbl.
Plaster of paris	2.35
Crushed stone 2 in.	1.40
Crushed stone, 1 in.	1.60
Crushed stone, 3/4 in.	1.75
Hardwall plaster	\$9.50 to 12.00 neat
	6.50 sanded ton
Gravel	1.35 yard
Hair (plaster) .....	.03 per lb.

PRICE AT TORONTO

Hemlock Lumber

2 x 4 in. to 2 x 12 in., 8 to 14 ft.	\$23.00 to 29.00
2 x 4 in. to 2 x 12 in., 16 ft.	23.00 to 29.00
2 x 4 in. to 2 x 12 in., 18 ft.	25.00 to 30.00
1 in. hemlock No. 1	23.00 to 26.00
No. 1 hemlock decking	25.00 to 28.00
No. 2 hemlock dimensions and 1 in. ...	19.00 to 23.00

Pine

1 in. common and better pine 8 to 12 in. wide, rough	\$25.00 to 33.00
2 in. white pine, mill stock	29.00 to 34.00
3/4 x 8 and 10 in. pine shelving	33.00 to 40.00
3/4 x 12 pine shelving	45.00 to 48.00
No. 1 white pine flooring	34.00 to 37.00
No. 1 spruce flooring	27.00 to 32.00
No. 1 pine decking, D2S	28.00 to 31.00
Spruce decking	27.00 to 32.00
No. 1 pine V. or beaded sheeting	35.00 to 39.00
No. 2 pine V. or beaded sheeting	30.00 to 33.00

No. 1 Common Yellow Pine

2 x 4 in. to 2 x 14 in., 10 to 16 ft.	\$24.00 to 36.00
2 x 4 in. to 2 x 14 in., 18 to 20 ft.	29.00 to 38.00
2 x 4 in. to 2 x 14 in., 22 to 24 ft.	31.00 to 40.00

Yellow Pine Finish

4/4 x 6, 8, 10 and 12 B. & B. smoke finish	\$41.00
5/4 x " " " " " "	45.00
6/4 x " " " " " "	45.00
8/4 x " " " " " "	45.00
4/4 x " " " " " " steam finish	45.00 to 50.00
5/4 x " " " " " "	48.00 to 50.00
6/4 x " " " " " "	48.00 to 50.00
8/4 x " " " " " "	50.00 to 55.00

NOTE TO READERS. We would be glad to have suggestions from readers as to the extension or modification of this list.

Price List of Building Materials—Continued.

Price at Toronto—Continued

Pine Trim for Paint Finish

4 in. casing, per 100 ft.	\$1.80 to 2.00
5 in. casing, per 100 ft.	2.00 to 2.50
8 in. pine base, per 100 ft.	2.75 to 3.25
10 in. pine base, per 100 ft.	4.00 to 4.50
4 in. pine window stool, per 100 ft. ...	3.00

Hardwood Trim, Flooring, Etc.

Quotations will be given on request.
See editor's note above.

Shingles, Lath Roofing Etc.

XXX B. C. cedar shingles	\$3.35 per M
N. B. extras	4.00
No. 1 pine lath	5.00 to 6.00 per M
No. 2 pine lath	4.75 to 5.00
No. 1 spruce lath	4.25
Roofing	1 ply—\$1.60 per sq.
	2 ply— 2.00 "
	3 ply— 2.40 "

Cedar Posts—Fence

5 in. at small end .....	.25 each
7 in. at small end .....	.50 each

Hardware

Nails, wire, common	\$2.35 cwt.
Nails, cut, common	2.95
Sash weights, cast iron	2.00
Tarred paper .....	.60 roll
Building paper, plain .....	.50

Glass

United inches	Star	D.D.
Up 25 (per 100-ft. box)	\$6.50	8.60
26-40	\$7.00	10.00
41-50	7.40	11.70
51-60	8.00	12.00
61-70	8.75	12.75
71-80	9.50	13.85
81-85	10.50	17.50
86-90		18.85
91-95		19.20
96-100		22.75
101-105		32.00
106-110		36.00

Less 20 p.c. F.O.B. Toronto.

Wired glass	18c. to 20c. per sq. ft.
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Brick, Tile, Terra Cotta, Sewer Pipe

No. 1 dry pressed red bricks	\$14.00 to 18.00 pr M
No. 1 dry pressed buff bricks	14.50 to 18.00
Red stock bricks	10.00 to 12.50
Sand lime brick	8.50
Grey stock bricks	10.50 to 12.50
Sewer brick	8.75 to 9.50
Wire cut brick for foundation work ...	8.00 to 9.00
Porous terra cotta bricks	12.00 to 15.00
No. 1 enamelled bricks, all colors, from	80.00 to 150.00
Fire brick	26.00 to 30.00
Sewer pipe, 4 inch	10c. foot
Sewer pipe, 6 inch	16c. foot
Verandah post caps, 16 in.	1.45 each
Verandah post caps, 20 in.	1.75 "
Chimney caps, 1 flue in 1 piece	2.00 "
Chimney caps, 2 flues in 2 pieces	3.50 "
Chimney caps, 3 flues in 3 pieces	5.00 "

Cement, Plaster, Stone, Etc.

Cement (bags extra)	\$1.85 bbl.
	(1.55 in car lots)
Sand, for cement or brick work	1.20 a yard

Price at Toronto—Continued

Lime .....	.38 cwt.
Hydrated lime (Canadian)	10.60 ton
Hydrated lime (American)	11.00 "
Mortar color	black, 3; red 2
Plaster of paris	\$1.50 to 2.50
Crushed stone, 2 in.	1.20
Crushed stone, 1 in.	1.25
Crushed stone, 3/4 in.	1.25
Hardwall plaster	9.10
	5.00 sanded
Gravel	1.50
Hair (plaster) .....	.07 lb.

PRICE AT WINNIPEG

Hemlock Lumber

2 x 4 in. to 2 x 12 in., 8 to 14 ft.	\$29.00
2 x 4 in. to 2 x 12 in., 16 ft.	29.00
2 x 4 in. to 2 x 12 in., 18 ft.	29.00

Shingles, Lath Roofing, Etc.

XXX B. C. cedar shingles	\$4.00 & 3.50 per M
No. 1 pine lath	5.75 per M
Metal lath .....	.16 to .20
Roofing felt (2-ply)	2.50 per roll

Hardware

Nails, wire, common	\$3.70 per keg
Nails, cut, common	3.70
Sash weights, cast iron	2.75 cwt.
Tarred felt paper	1.00 per roll
Building paper .....	.75
Insulating paper	1.25

United Glass

United inches	Single	Double
Up 25	\$6.00	8.00
26-40	6.50	9.00
41-50	7.00	10.25
51-60	7.50	11.00
61-70	8.00	11.75
71-80	8.50	12.75
81-85		15.75
86-90		16.75
91-95		17.75
96-100		21.00
101-105		23.50
106-110		27.00

Brick, Tile, Terra Cotta, Sewer Pipe

No. 1 dry pressed red bricks	\$25.00 to 50.00
No. 1 dry pressed buff bricks	30.00 to 40.00
Red stock bricks	25.00
Sand lime brick	12.00
Porous terra cotta bricks	18.00 per M
No. 1 enamelled bricks, all colors, from	100.00
Fire brick	52.50
Oriental brick	35.00
Sewer pipe, 4 inch .....	.11 per ft.
Sewer pipe, 6 inch .....	.18 1/2 per ft.

Cement, Plaster, Stone, Etc.

Cement (bags extra)	\$2.60 per bbl.
Sand, for cement or brick work	1.85 a yard
Lime .....	.34 per bu.
Hydrated lime	12.00 per ton
Mortar color .....	.05 per lb.
Plaster of paris .....	.75 per bag
Crushed stone, 2 in.	2.65 per yard
Crushed stone, 1 in.	2.90

NOTE TO READERS. We would be glad to have suggestions from readers as to the extension or modification of this list.

Price List of Building Materials—Continued.

Price at Winnipeg—Continued

Crushed stone, ¾ in.	2.90
Hardwall plaster	13.00 per ton
Gravel	1.85 per yard
Hair (plaster)	1.25 per bale

PRICE AT VANCOUVER

Shingles, Lath Roofing, Etc.

XXX B. C. cedar shingles	\$2.20 & 2.10 per M
No. 1 pine lath	2.25 per M

Hardware

Nails, wire, common	\$3.25 per keg
Nails, cut, common	4.25
Tarred felt paper .....	.90 per roll
Building paper .....	.70

Price at Vancouver—Continued

Brick, Tile, Terra Cotta, Sewer Pipe

No. 1 dry pressed red bricks	\$12.00 per M
No. 1 dry pressed buff bricks	42.00
Red stock bricks	13.00
Fire brick	45.00
Sewer pipe, 4 inch .....	.25 per ft.

Cement, Plaster, Stone, Etc.

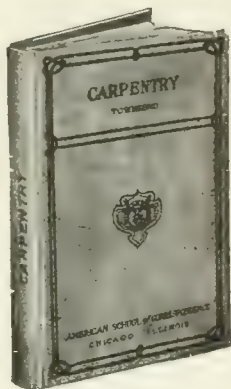
Cement (bags extra)	\$3.00 per bbl.
Lime	1.35 per bbl.
Hydrated lime	4.25 per bbl.
Plaster of paris	4.50 per bbl.
Hardwall plaster	14.50 per ton
Hair (plaster)	14.50 per ton

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Boilers

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Brick

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Bronze Cast

W. H. Thornhill Co., Winnipeg.

Dennis Wire & Iron Works Co., London.

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London Concrete Machinery Co., London, Ont.

Ceilings (Metal)

Metal Shingle & Siding Co., Preston.

Cement (Portland)

Braid & McCurdy, Winnipeg, Man.

Ontario Lime Association, Toronto.

Cement Castings

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Cement Tools

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Cement Saws

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Colors for Concrete

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Batts, Limited, Toronto.

Benson & Bray, Midland.

Georgian Bay Shook Mills, Midland.

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London Concrete Machinery Co., London, Ont.

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Exeter Mfg. Co., Limited, Exeter, Ont.

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Ideal Concrete Machinery Co., London.

London Concrete Machinery Co., London, Ont.

Sasgen Derrick Co., Toronto.

Stuart Machinery Co., Ltd., Winnipeg.

Doors

Batts, Limited, Toronto.

Benson & Bray, Midland.

Georgian Bay Shook Mills, Midland.

York Lumber Co., Toronto.

Doors (Veneered)

Batts, Limited, Toronto.

Benson & Bray, Midland.

Georgian Bay Shook Mills, Midland.

Wilson Bros. Ltd., Collingwood.

York Lumber Co., Toronto.

Door Trimmings

Metal Shingle & Siding Co., Preston.

W. H. Thornhill Co., Winnipeg.

Drag Scrapers

London Concrete Machinery Co., London, Ont.

Draughting

The Patent Selling & Mfg. Agency, Toronto.

Drawing Materials

Eugene Dietzgen Co., Ltd., Toronto.

Driers

London Concrete Machinery Co., London, Ont.

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Chelsea Elevator Co., New York, N.Y.

Eavestrough and Conductor-Pipe

Metal Shingle & Siding Co., Preston.

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W. H. Thornhill Co., Winnipeg.

Canadian H. W. Johns-Manville Co., Ltd., Toronto.

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Stuart Machinery Co., Ltd., Winnipeg.

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London Concrete Machinery Co., London, Ont.

Stuart Machinery Co., Ltd., Winnipeg.

Wettlaufer Bros., Toronto, Ont.

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CLASSIFIED DIRECTORY—Continued

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don, Ont.

Files
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Canadian H. W. Johns-Manville Co.,
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Georgian Bay Shook Mills, Midland.
The R. Laidlaw Co., Limited, Toronto.

Wilson Bros. Ltd., Collingwood.
Siemen Bros., Ltd., Toronto.

York Lumber Co., Toronto.
Floor Scrapers

Exeter Mfg. Co., Ltd., Exeter, Ont.
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York Lumber Co., Toronto.

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don, Ont.

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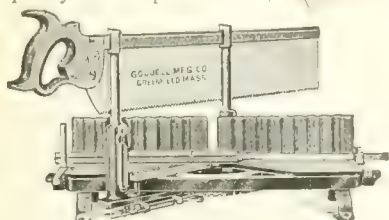
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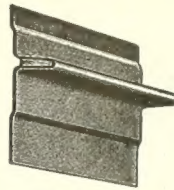
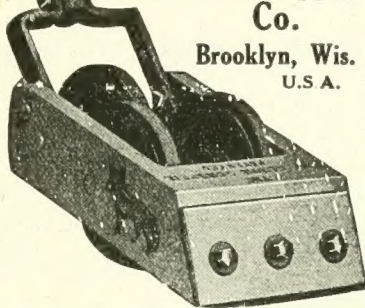
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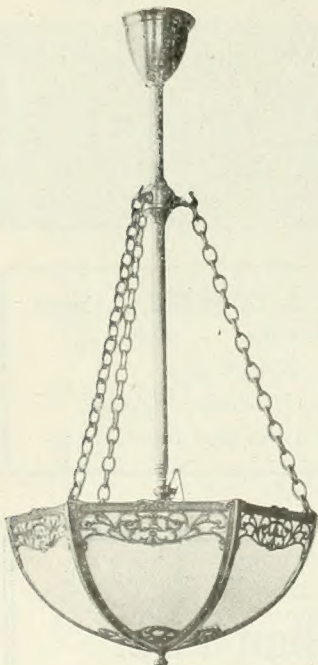
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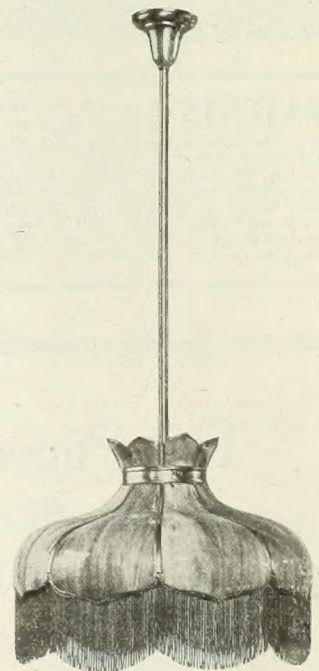
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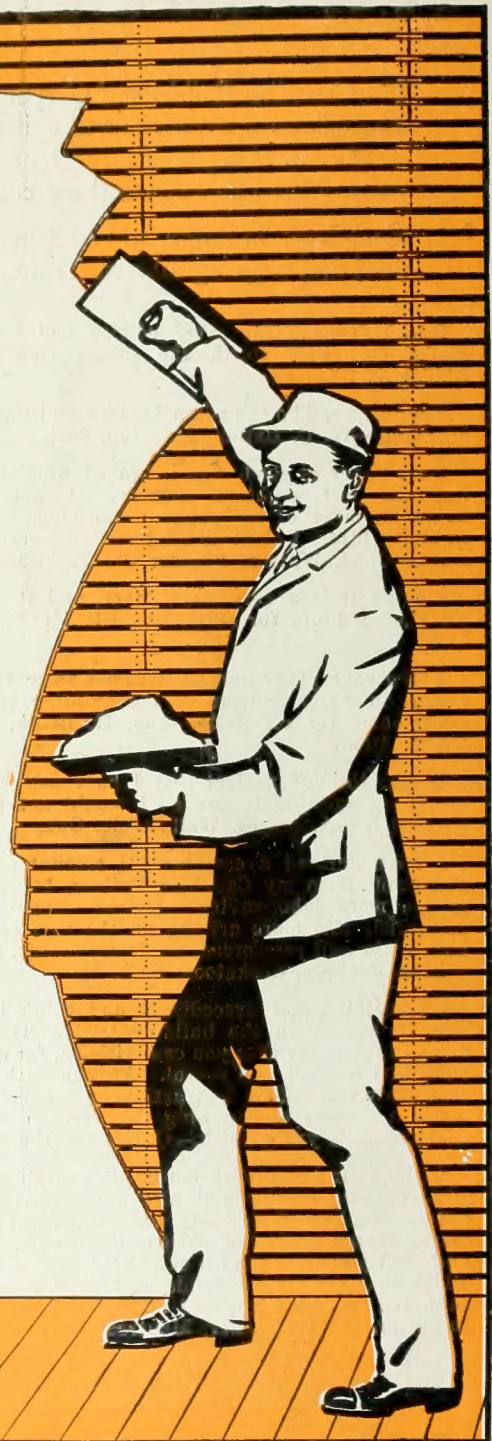
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